

# ONKYO SERVICE MANUAL

# QUARTZ SYNTHESIZED TUNER AMPLIFIER


**MODEL TX-904**  
**MODEL TX-906**



### Black model

BHUD, BHUDN, BHUDC	120V AC, 60Hz
BHUP	230V AC, 50Hz
BHUW	120/220V AC, 50/60Hz
BHUQA	240V AC, 50Hz

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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# ONKYO<sup>®</sup> AUDIO COMPONENTS

# SPECIFICATIONS

## OTHER MODELS

### AMPLIFIER SECTION

	TX-906	TX-904
Power Output:	Stereo mode 80 watts per channel min. RMS. at 8 ohms, both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion.	Stereo mode 60 watts per channel min. RMS. at 8 ohms, both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion.
Musical Power Output:	2 × 190 watts at 4 ohms 1 kHz DIN 2 × 130 watts at 8 ohms 1 kHz DIN	2 × 160 watts at 4 ohms 1 kHz DIN 2 × 100 watts at 8 ohms 1 kHz DIN
Continuous Power Output:	2 × 115 watts at 4 ohms 1 kHz DIN 2 × 90 watts at 8 ohms 1 kHz DIN Surround/Simul mode 75 watts per channel min. RMS. at 8 ohms both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. (FRONT) 12 watts per channel min. RMS. at 8 ohms 1,000Hz with no more than 0.8% total harmonic distortion. (REAR or REMOTE)	2 × 90 watts at 4 ohms 1 kHz DIN 2 × 70 watts at 8 ohms 1 kHz DIN Simul mode 55 watts per channel min. RMS. at 8 ohms both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. (FRONT) 12 watts per channel min. RMS. at 8 ohms 1,000Hz with no more than 0.8% total harmonic distortion. (REMOTE)
Total Harmonic Distortion:	0.08% at rated power (FRONT)	0.08% at rated power (FRONT)
IM Distortion:	0.08% at rated power (FRONT)	0.08% at rated power (FRONT)
Damping Factor:	60 at 8 ohms (FRONT)	60 at 8 ohms (FRONT)
Sensitivity and Impedance:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/2.2 kohms Pre out (REAR): 1V, 2.2 kohms Pre out (CENTER): 1V, 2.2 kohms	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/2.2 kohms
Phono Overload:	120mV RMS. at 1,000 Hz, 0.08 % THD.	120mV RMS. at 1,000 Hz, 0.08% THD.
Frequency Response:	20 to 30,000 Hz, +/-1 dB	20 to 30,000 Hz, +/-1 dB
RIAA Deviation:	20 to 20,000 Hz, +/-0.8 dB	20 to 20,000 Hz, +/-0.8 dB
Tone Control:	BASS: +/-10 dB at 100 Hz TREBLE: +/-10 dB at 10,000 Hz	BASS: +/-10 dB at 100 Hz TREBLE: +/-10 dB at 10,000 Hz
Signal to Noise Ratio:	PHONO: 80 dB (IHF A, 5mV input) CD/TAPE: 100 dB (IHF A)	PHONO: 80 dB (IHF A, 5mV input) CD/TAPE: 100 dB (IHF A)
Muting:	- ∞ dB	- ∞ dB

### VIDEO SECTION (TX-906/904)

Signal sensitivity and impedance

VDP/VCR normal input, output: 1 V<sub>p-p</sub>, 75 ohms

### TUNER SECTION

#### FM:

Tuning Range:	European models: 87.5 — 108.0MHz (50kHz steps) Canadian models: 87.5 — 108.0MHz (100kHz steps)
Usable Sensitivity:	Mono: 11.2dBf, 1.0μV, 75 ohms 0.9μV (S/N 26dB, 40kHz Devi.) 75 ohms DIN Stereo: 18.0dBf, 2.2μV, 75 ohms 23μV (S/N 46dB, 40kHz Devi.) 75 ohms DIN
50dB Quieting Sensitivity:	Mono: 18.0dBf, 2.2μV, 75 ohms Stereo: 37.2dBf, 20μV, 75 ohms
Capture Ratio:	1.5dB
Image Rejection Ratio:	85dB
IF Rejection Ratio:	90dB
Signal-to-Noise Ratio:	Mono: 73dB Stereo: 67dB
Selectivity	50dB DIN (±300kHz, 40kHz devi.)
AM Suppression Ratio:	50dB
Harmonic Distortion:	Mono: 0.15% Stereo: 0.25%
Frequency Response:	30 — 15,000Hz ± 1.5dB
Stereo Separation:	45dB at 1kHz

#### AM:

Tuning Range:	European models: 522 — 1611kHz (9kHz steps) Canadian models: 530 — 1710kHz (10kHz steps) Saudi Arabia & Worldwide models: 531 — 1602kHz (9kHz steps)
Usable Sensitivity:	30μV
Image Rejection Ratio:	40dB
IF Rejection Ratio:	40dB
Signal-to-Noise Ratio:	40dB
Harmonic Distortion:	0.7%

#### GENERAL

Power Supply:	European models: AC230V, 50Hz Canadian models: AC120V, 60Hz U.K & Australian models: AC 240V, 50Hz Worldwide models: 120 and 220V switchable, 50/60Hz
Dimensions (W × H × D):	455 × 150 × 331.5 mm 17-15/16" × 5-7/8" × 13-1/16"
Weight:	TX-906: 10.8 kg, 23.8 lbs TX-904: 9.7 kg, 21.4 lbs

Specifications and features are subject to change without notice.

## 120V MODEL AMPLIFIER SECTION

### TX-906

Power Output:	Stereo mode 80 watts per channel min. RMS. at 8 ohms, both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. Surround/Simul mode 75 watts per channel min. RMS. at 8 ohms both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. (FRONT) 12 watts per channel min. RMS. at 8 ohms 1,000Hz with no more than 0.8% total harmonic distortion. (REAR or REMOTE)
Total Harmonic Distortion:	0.08% at rated power (FRONT)
IM Distortion:	0.08% at rated power (FRONT)
Damping Factor:	60 at 8 ohms (FRONT)
Sensitivity and Impedance:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/2.2 kohms Pre out (REAR): 1V, 2.2 kohms Pre out (CENTER): 1V, 2.2 kohms
Phono Overload:	120mV RMS. at 1,000 Hz, 0.08 % THD.
Frequency Response:	20 to 30,000 Hz, +/-1 dB
RIAA Deviation:	20 to 20,000 Hz, +/-0.8 dB
Tone Control:	BASS: +/-10 dB at 100 Hz TREBLE: +/-10 dB at 10,000 Hz
Signal to Noise Ratio:	PHONO: 80 dB (IHF A, 5mV input) CD/TAPE: 100 dB (IHF A)
Muting:	- ∞ dB

### TX-904

Stereo mode 60 watts per channel min. RMS. at 8 ohms, both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. Simul mode 55 watts per channel min. RMS. at 8 ohms both channels driven, from 20Hz to 20,000Hz, with no more than 0.08% total harmonic distortion. (FRONT) 12 watts per channel min. RMS. at 8 ohms 1,000Hz with no more than 0.8% total harmonic distortion. (REMOTE)	0.08% at rated power (FRONT)
0.08% at rated power (FRONT)	60 at 8 ohms (FRONT)
Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/2.2 kohms	
120mV RMS. at 1,000 Hz, 0.08% THD.	
20 to 30,000 Hz, +/-1 dB	
20 to 20,000 Hz, +/-0.8 dB	
BASS: +/-10 dB at 100 Hz	
TREBLE: +/-10 dB at 10,000 Hz	
PHONO: 80 dB (IHF A, 5mV input) CD/TAPE: 100 dB (IHF A)	
- ∞ dB	

## VIDEO SECTION (TX-906/904)

Signal sensitivity and impedance  
VDP/VCR normal input, output: 1 V<sub>p-p</sub>, 75 ohms

## TUNER SECTION (TX-906/904)

<b>FM:</b>	
Tuning Range:	87.5 — 108.0MHz (100kHz steps)
Usable Sensitivity:	Mono: 11.2dBf, 2.0μV Stereo: 17.2dBf, 4.0μV
50dB Quieting Sensitivity:	Mono: 17.2dBf, 4.0μV Stereo: 37.2dBf, 40μV
Capture Ratio:	1.5dB
Image Rejection Ratio:	40dB
IF Rejection Ratio:	90dB
Signal-to-Noise Ratio:	Mono: 73dB Stereo: 67dB
Alternate Channel Attenuation:	55dB
AM Suppression Ratio:	50dB
Harmonic Distortion:	Mono: 0.15% Stereo: 0.25%
Frequency Response:	30 — 15,000Hz ± 1.5dB
Stereo Separation:	45dB at 1kHz/30dB at 100 — 10,000Hz
Muting Level:	17.2dBf, 4μV

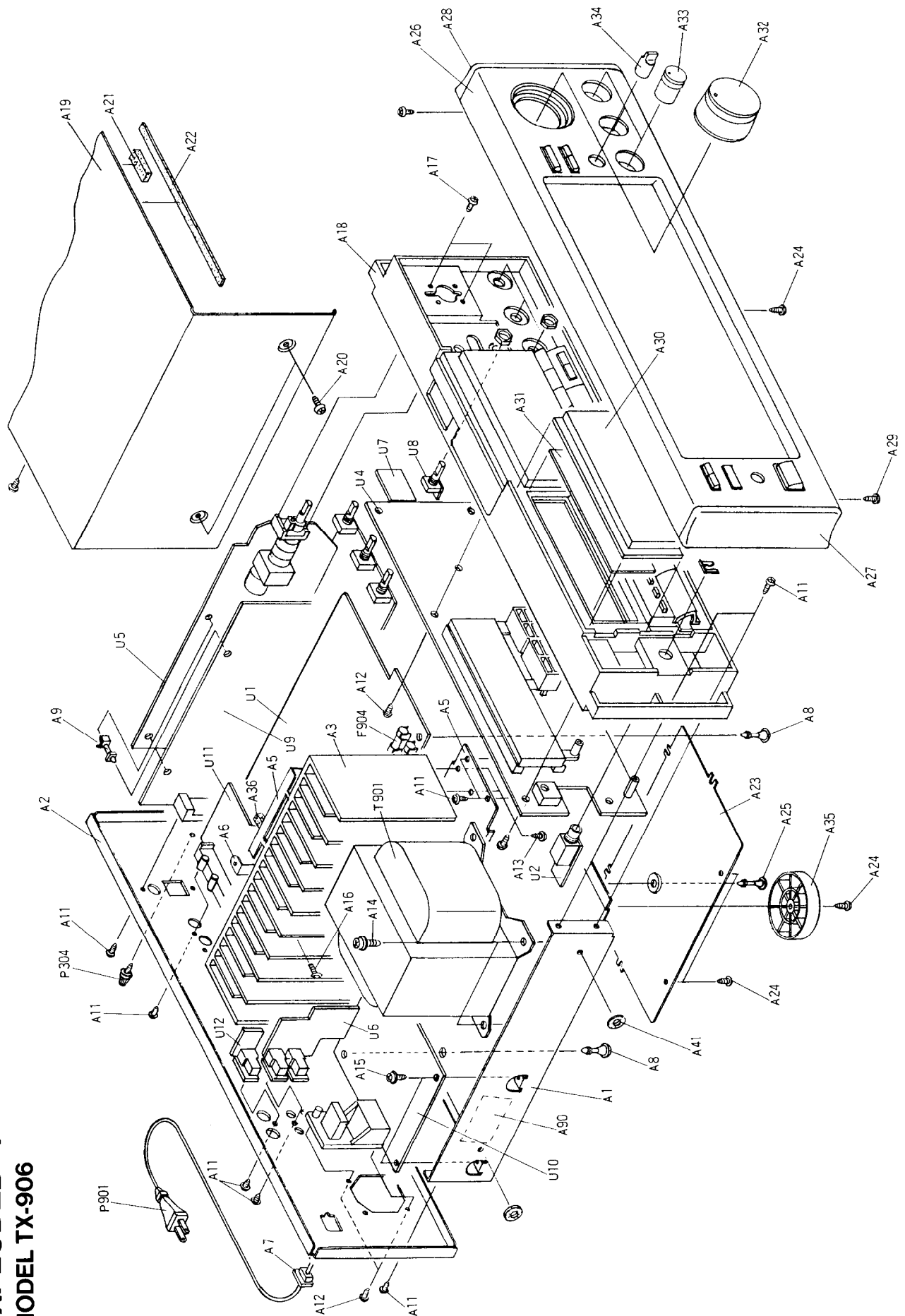
<b>AM:</b>	
Tuning Range:	530 — 1710kHz (10kHz steps)
Usable Sensitivity:	30μV
Image Rejection Ratio:	40dB
IF Rejection Ratio:	40dB
Signal-to-Noise Ratio:	40dB
Harmonic Distortion:	0.7%

## GENERAL

Power Supply:	AC120V, 60Hz
Dimensions (W × H × D):	455 × 150 × 331.5 mm 17-15/16" × 5-7/8" × 13-1/16"
Weight:	TX-906: 10.8 kg, 23.8 lbs TX-904: 9.7 kg, 21.4 lbs

Specifications and features are subject to change without notice.

# EXPLODED VIEW MODEL TX-906



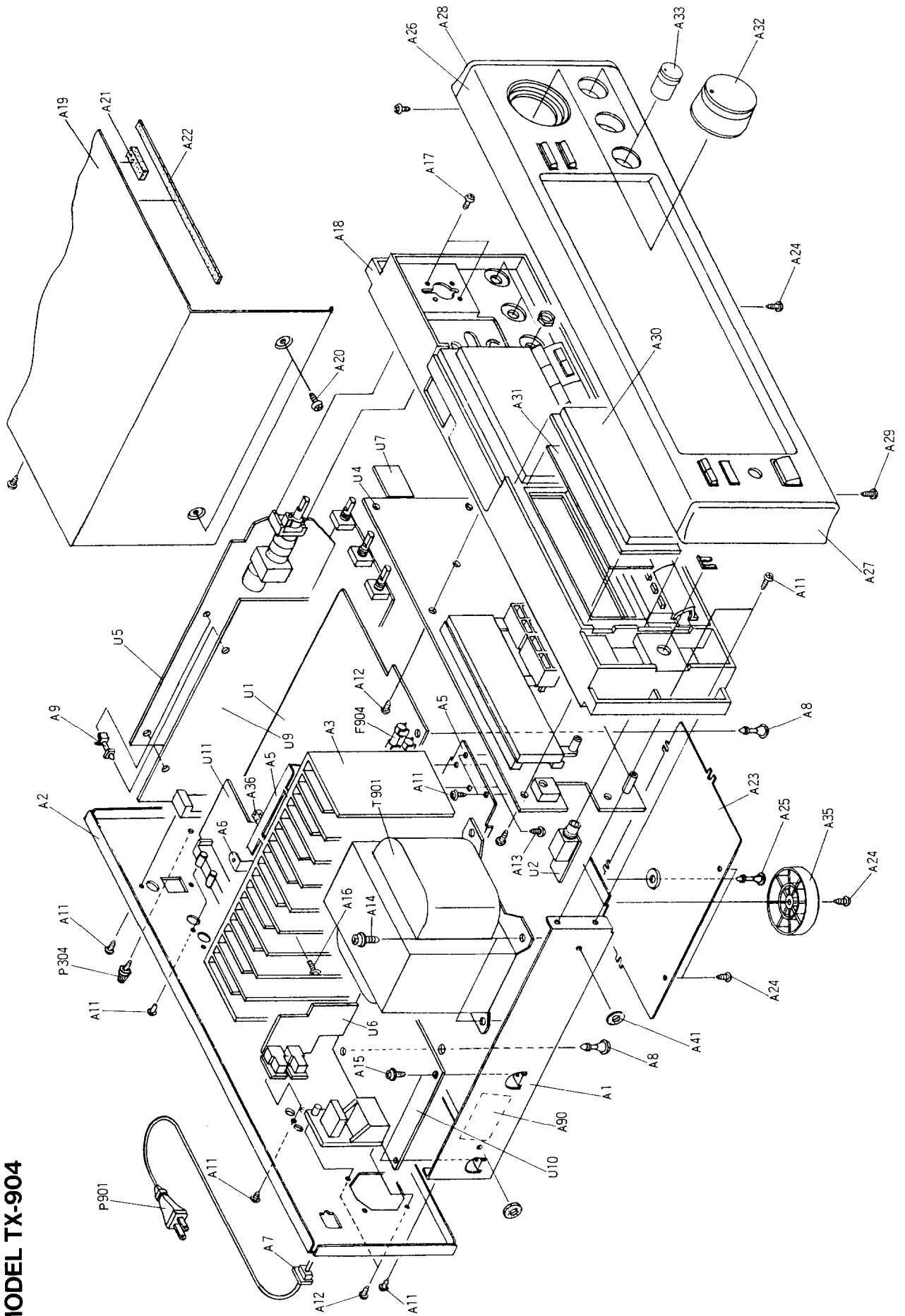
## PARTS LIST

REF. NO. PART NO.	DESCRIPTION	REF. NO. PART NO.	DESCRIPTION	REF. NO. PART NO.	DESCRIPTION
A1 27100239A	Chassis	F903 252075	2.5A-SE-EAK, AC outlet fuse <P>	U7 1A274592-1	NASW-4192-1, Operation switch pc board ass'y
A2 27121443	Back panel <D>	F904, F905 252051	6A ST-6, Secondary fuse <D>	U8 1A274593-1	NAETC-4193-1, Input balance volume pc board ass'y
	Back panel <P>	252078	5A-SE-EAK, Secondary fuse <P/W/Q>	U9 1A274594-1	NARF-4194-1, Tuner circuit pc board ass'y <D>
A3 27121446	Back panel <W>			1A274594-1A	NARF-4194-1A, Tuner circuit pc board ass'y <P/Q>
A4 27121447	Back panel <Q>	JL701 2041302010	NCFC1-302010, Flat cable	1A274594-1B	NARF-4194-1B, Tuner circuit pc board ass'y <W>
A5 27160286	Radiator	P304 25060044	Terminal GND	1A274595-1	NAPS-4195-1, Power supply circuit pc board ass'y <D>
A6 27141474	Bracket SH	P901 253123,	AS-UC-6 #18,	1A274595-1A	NAPS-4195-1A, Power supply circuit pc board ass'y <P>
A7 27130653	Bracket H	253146 or	Power supply cord <D>	1A274595-1B	NAPS-4195-1B, Power supply circuit pc board ass'y <W>
A8 27141498	Bracket S	253161		1A274595-1C	NAPS-4195-1C, Power supply circuit pc board ass'y <Q>
A9 27190657	Bushing	253148	AS-CEE, Power supply cord <P>	U11 1A274596-1	NAAF-4196-1, Video and rear amplifier pc board ass'y <D>
A10 27190062	KGLS-18RT, Holder	253092-1A	AS-CEE-2, Power supply cord <W>	1A274596-1A	NAAF-4196-1A, Video and rear amplifier pc board ass'y <P/W/Q>
A11 801433	KGLS-12S, Holder	253118	AS-SAA, Power supply cord <Q>	U12 1A274599-1	NAETC-4199-1, Rear preout pc board ass'y
A12 834430088	Sens tapping screw	P902, P903 25050346	NSCT-2P173, AC outlet <Q>	U14 1A274561-1	NAETC-4261-1, Terminal pc board ass'y
A13 83430088	3TTS+8B(BC), Self-tapping screw	Q505, Q506 2201653,	2SC3856-O,		
A14 83430108	3TTP+8B(BC), Self-tapping screw	2201655,	2SC3856-P,		
A15 83440089	4TTC+8C(BC), Self-tapping screw	2202272 or	2SC3907-R or		
A16 831130088	3TTW+8B, Self-tapping screw	2202273	2SC3907-O, Power transistors		
A17 82143015	3P+15FN(BC), Pan head screw	Q507, Q508 2201663,	2SA1492-O,		
A18 82143006	3P+6FN(BC), Pan head screw	2201664,	2SA1492-Y,		
A19 27110638B	Front bracket ass'y	2201665,	2SA1492-P,		
A20 834430088	Top cover	2202262 or	2SA1516-R or		
A21 28141132	3TTS+8B(BC), Self-tapping screw	2202263	2SA1516-Q, Power transistors		
A22 28140024	Cushion	T901 2300666	NPT-1110D, Power transformer <D>		
A23 27170280A	Cushion	2300667	NPT-1110P, Power transformer <P>		
A24 834430088	Bottom panel	2300668	NPT-1110DG, Power transformer <W>		
A25 27190657	3TTS+8B(BC), Self-tapping screw	2300669	NPT-1110Q, Power transformer <Q>		
A26 1A274121	KGLS-18RT, Holder	U1 1A274587-1	NAAF-4187-1, Selector and power amplifier pc board ass'y <D>		
A27 28125234A	Front panel ass'y		NAAF-4187-1A, Selector and power amplifier pc board ass'y <P/W/Q>		
A28 28125235A	End cap L	1A274587-1A	NAETC-4188-1, Headphone terminal pc board ass'y		
A29 833430080	End cap R	U2 1A274588-1	NADIS-4189-1, Display circuit pc board ass'y <D>		
A30 28191596	3TTP+8B(BC), Self-tapping screw	U4 1A274589-1	NADIS-4189-1A, Display circuit pc board ass'y <P/Q>		
A31 28133262Y	Clear plate	1A274589-1A	NADIS-4189-1B, Display circuit pc board ass'y <W>		
A32 28324372	Back plate	1A274589-1B	NAAF-4190-1, Volume and surround circuit pc board ass'y		
A33 28324376A	Knob VOLUME	U5 1A274590-1	NADG-4191-1, R/IMR terminal pc board ass'y <D>		
A34 28324378	Knob TONE	U6 1A274591-1	NADG-4191-1A, R/IMR terminal pc board ass'y <P/W/Q>		
A35 27175251 or	Knob IB	1A274591-1A			
27175251-1	Leg				
A36 28140020	Cushion				
A41 27270212	Spacer <P/W/Q>				
A90 29360626-1	Fuse label				
F901 252051	6A ST-6, Primary fuse <D/W>				
F902 252076	3.15A-SE-EAK, Primary fuse <P/W/Q>				

NOTE: <D>: Only 120V model  
<P>: Only 230V model  
<W>: Only Worldwide model  
<Q>: Only 240V model

NOTE:  
THE COMPONENTS IDENTIFIED BY MARK **Δ** ARE  
CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK.  
REPLACE ONLY WITH PART NUMBER SPECIFIED.


# EXPLODED VIEW MODEL TX-904



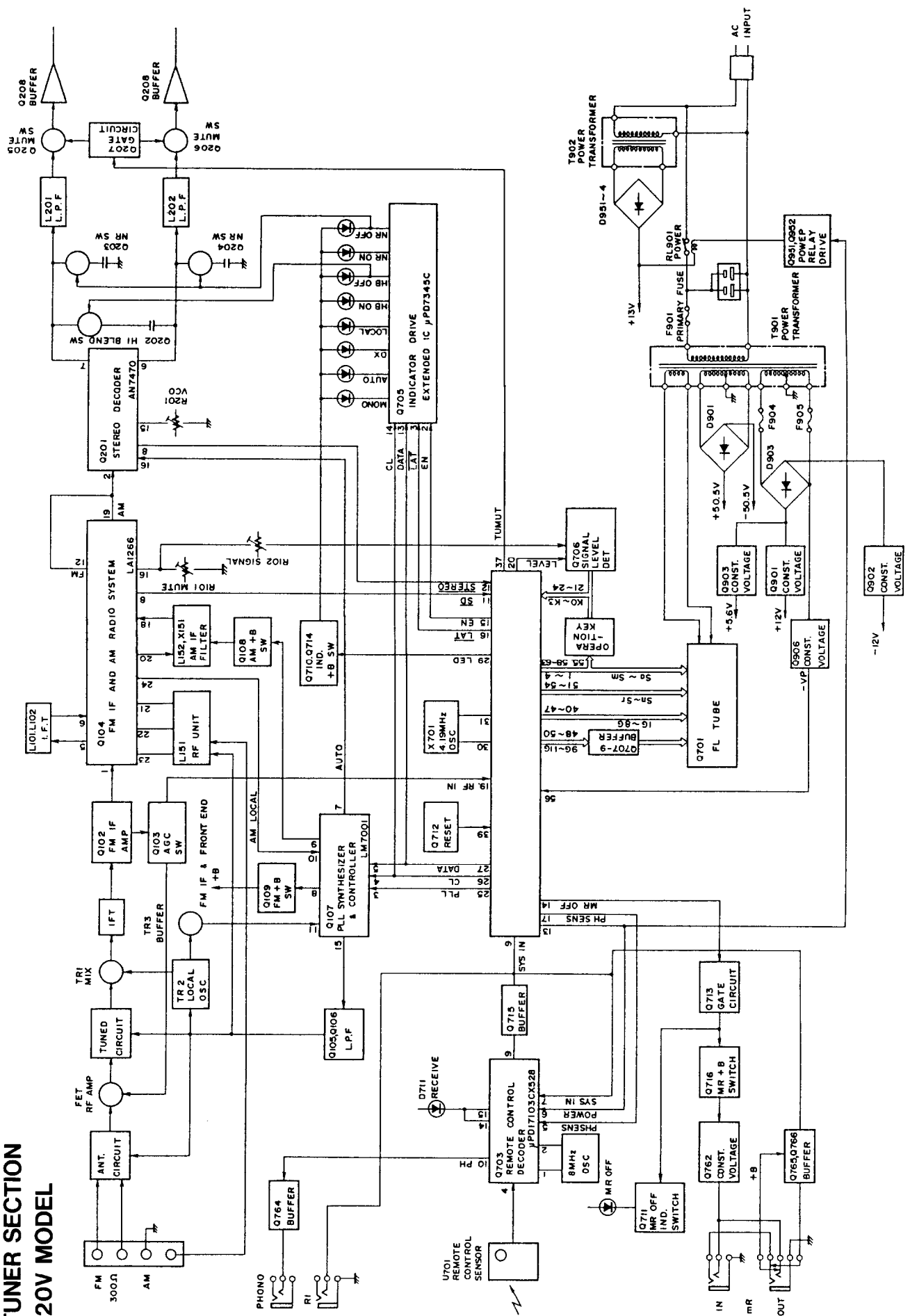
## PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
A1	27100239A	Chassis	F903	252075	2.5A-SE-EAK,AC outlet fuse <P>
A2	27121448	Back panel <D>	F904,F905	252051	6A ST-6,Secondary fuse <D>
	27121449	Back panel <P>		252078	5A-SE-EAK,Secondary fuse <P/W/Q>
	27121451	Back panel <W>			
A3	27121452	Back panel <Q>	JL701	2041302010	NCFC1-302010,Flat cable
A4	27160287	Radiator	P304	25060044	Terminal GND
A5	27141474	Bracket SH	P901	253123,	AS-UC-6 #18,
A6	27141498	Bracket H		253146 or	Power supply cord <D>
A7	27300750	Bracket S		253161	
A8	27190657	Bushing		253148	AS-CEE,Power supply cord <P/W>
A9	27190662	KGLS-18RT,Holder		253118	AS-SAA,Power supply cord <Q>
A10	801433	KGLS-12S,Holder	P902,P903	25050346	NSCT-2P173,AC outlet <Q>
A11	834430088	Sems tapping screw	Q505,Q506	2202523,	2SC4468-O,
A12	833430080	3TTS+8B(BC),Self-tapping screw		2202524,	2SC4468-Y,
A13	833430108	3TTP+8B(BC),Self-tapping screw		2202526,	2SC4468-P,
A14	830440089	3TTS+10B(BC),Self-tapping screw		2202292 or	2SC3182N-R or
A15	831130088	4TTC+8C(BC),Self-tapping screw		2202293	2SC3182N-Q,Power transistors
A16	82143015	3TTW+8B,Self-tapping screw	Q507,Q508	2202513,	2SA1695-O,
A17	82143006	3P+15FN(BC),Pan head screw		2202514,	2SA1695-Y,
A18	27110639B	3P+6FN(BC),Pan head screw		2202516,	2SA1695-P,
A19	28184476A	Front bracket ass'y		2202282 or	2SA1265N-R or
A20	834430088	Top cover	T901	2202283	2SA1265N-Q,Power transistors
A21	28141132	3TTS+8B(BC),Self-tapping screw		2300674	NPT-1110D,Power transformer <D>
A22	28140024	Cushion		2300675	NPT-1110P,Power transformer <P>
A23	27170280A	Cushion		2300676	NPT-1110DG,Power transformer <W>
A24	834430088	Bottom panel		2300677	NPT-1110Q,Power transformer <Q>
A25	27190657	3TTS+8B(BC),Self-tapping screw	U1	1A276587-2	NAAF-4187-2,Selector and power amplifier pc board ass'y <D>
A26	1A276121	KGLS-18RT,Holder		1A276587-2A	NAAF-4187-2A,Selector and power amplifier pc board ass'y <P/W/Q>
A27	28125234A	End cap L		1A276588-2	NAETC-4188-2,Headphone terminal pc board ass'y
A28	28125235A	End cap R	U2		
A29	833430080	3TTP+8B(BC),Self-tapping screw	U4	1A276589-2	NADIS-4189-2,Display circuit pc board ass'y <D>
A30	28191596	Clear plate		1A276589-2A	NADIS-4189-2A,Display circuit pc board ass'y <P/Q>
A31	28133262Y	Back plate		1A276589-2B	NADIS-4189-2B,Display circuit pc board ass'y <W>
A32	28324372	Knob VOLUME	U5	1A276590-2	NAAF-4190-2,Volume circuit pc board ass'y
A33	28324376A	Knob TONE	U6	1A276591-2	NADG-4191-2,R1/MR terminal pc board ass'y <D>
A35	27175251 or 27175251-1	Leg		1A276591-2A	NADG-4191-2A,R1/MR terminal pc board ass'y <P/W/Q>
A36	28140020	Cushion			
A41	27270212	Spacer <P/W/Q>			
A90	29360626-1	Fuse label			
F901	252051	6A ST-6,Primary fuse <D/W>			
F902	252076	3.15A-SE-EAK,Primary fuse <P/W/Q>			

NOTE: <D>:Only 120V model  
<P>:Only 230V model  
<W>:Only Worldwide model  
<Q>:Only 240V model

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

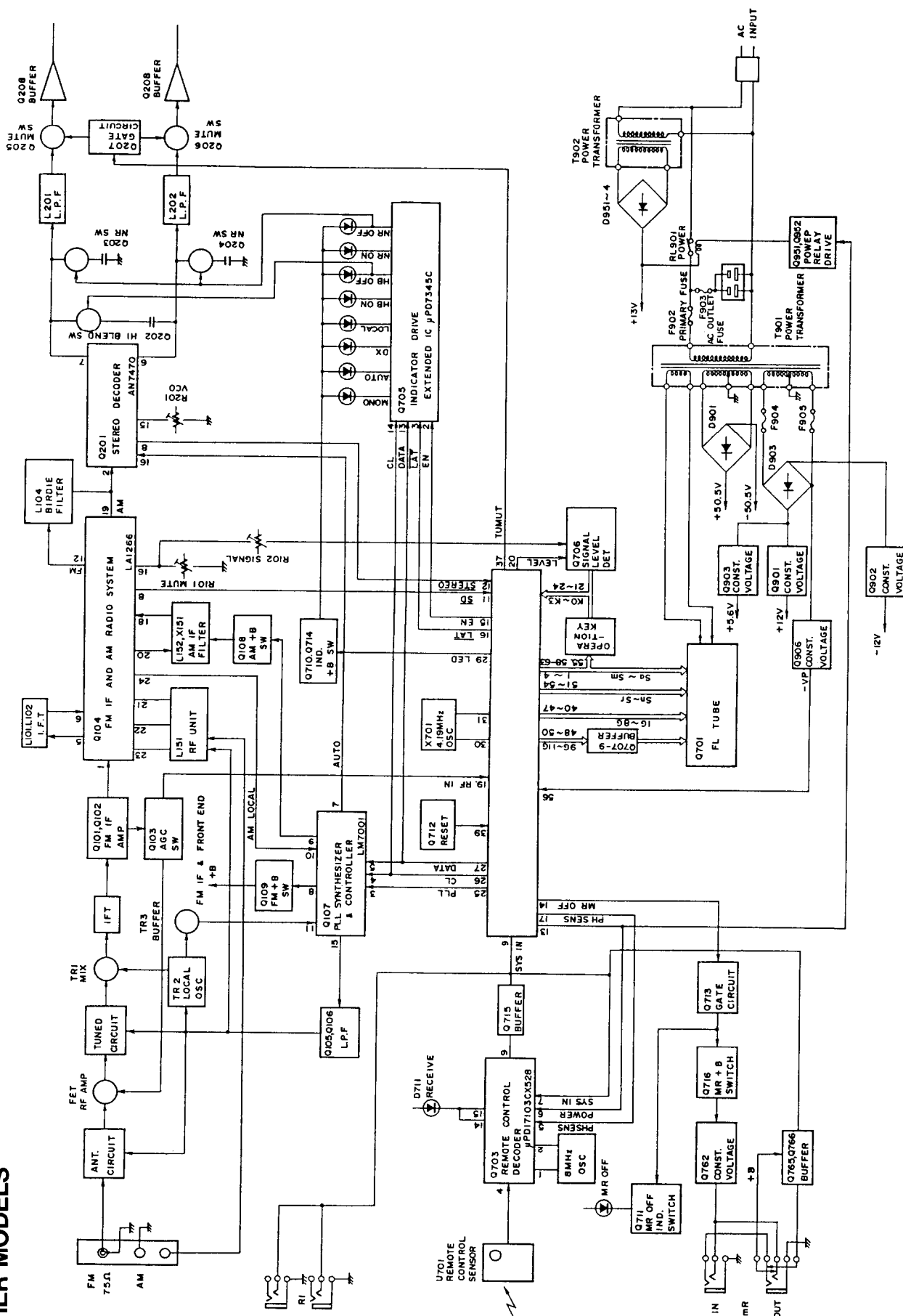
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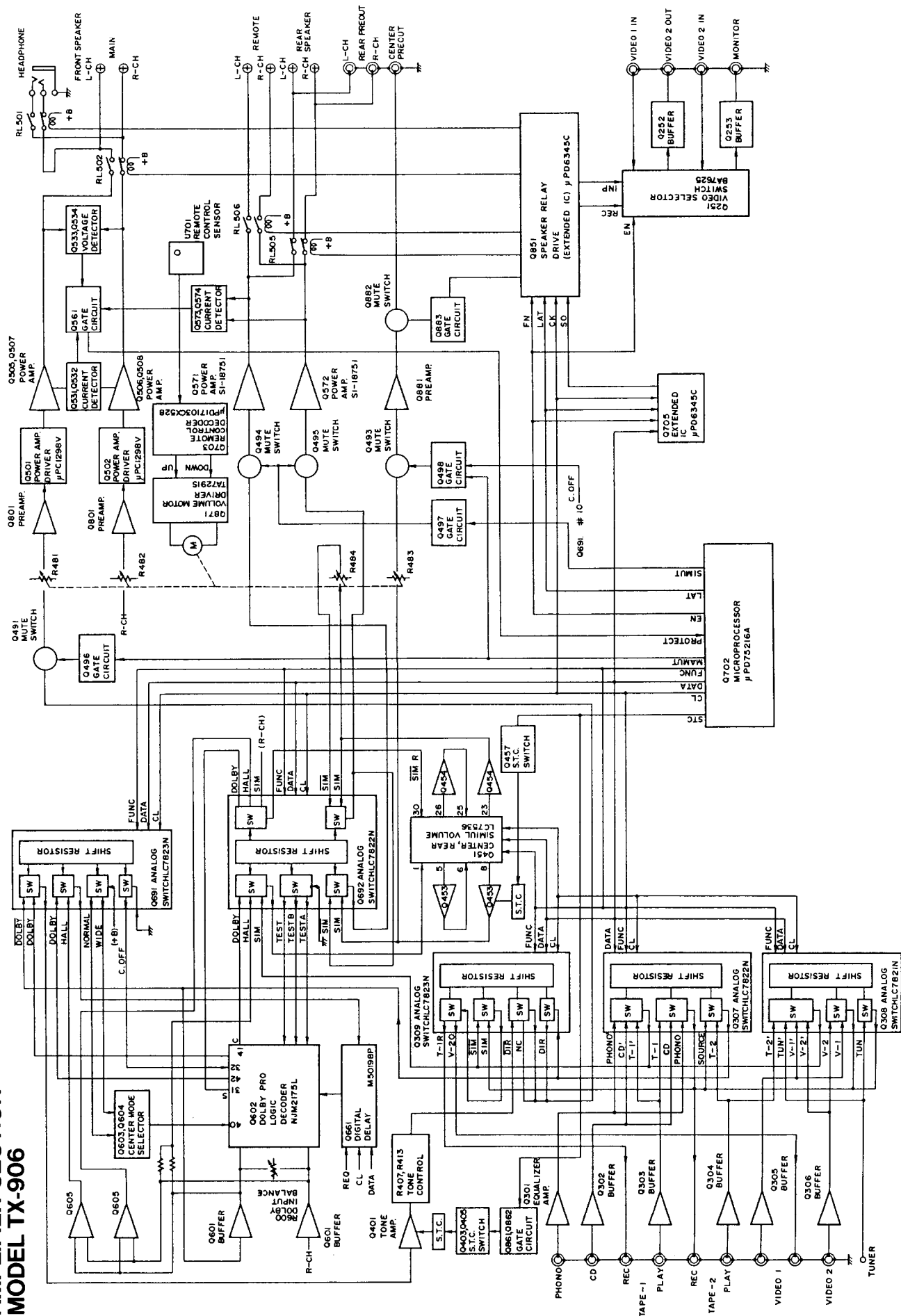


## TUNER SECTION

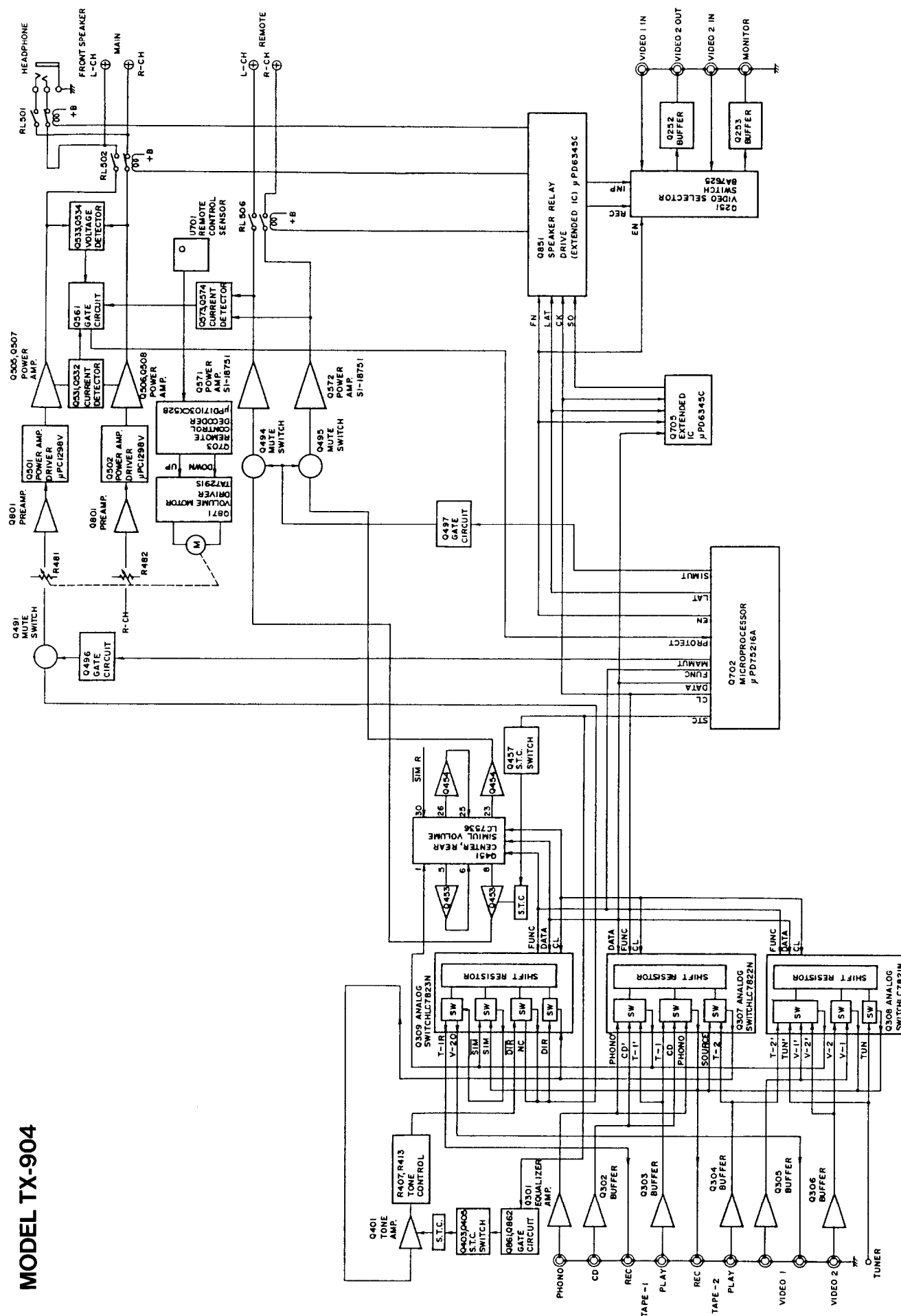
## OTHER MODELS



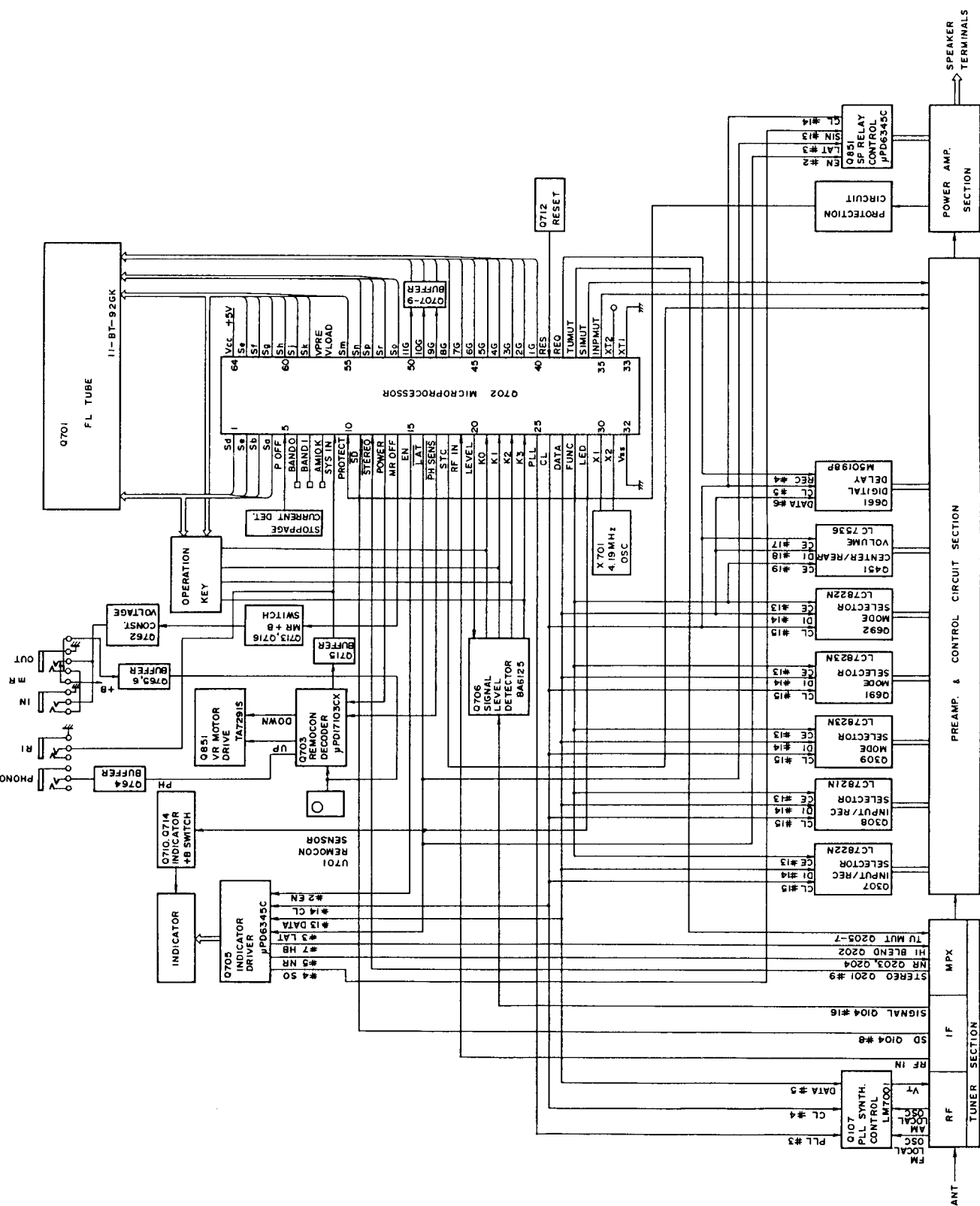
# BLOCK DIAGRAM AMPLIFIER SECTION MODEL TX-906



# MODEL TX-904



## MICROPROCESSOR DESCRIPTIONS



## Terminal Description

Pin No.	Symbol	Description												
1	Sd	Segment and key scan output terminals. "H" when active.												
2	Sc													
3	Sb													
4	Sa													
5	POFF	This is the input terminal for detection of the stoppage of electric current. "L" when the stoppage of electric current.												
6	BAND0	Initializing input terminal for region setting of FM band.												
7	BAND1													
8	AM 10K	Initializing input terminal for region setting of AM band.												
9	SYS IN	System code input terminal. "H" when active.												
10	PROTECT	Protection circuit operation detection input terminal. "H" when active.												
11	SD	Broadcast detection input terminal. "L" when active. Control the stop of auto tuning and output TU MUT(#37).												
12	STEREO	Stereo broadcast detection input terminal. "L" when stereo broadcast.												
13	POWER	Power control output terminal. "H" when the power turns on.												
14	MR	MR control output terminal. "H" when MR turns on.												
15	EN	Connect the terminal EN of the extended IC $\mu$ PD6345C.(Q705,Q851)												
16	LAT	Connect the terminal LAT of the extended IC $\mu$ PD6345C.												
17	PHONO	Phono control output terminal.												
18	S.TONE	SELECTIVE TONE control output terminal. "H" when this switch turns on.												
19	RF IN	RF mode input terminal. <table><tr><td>RF IN</td><td>RF MODE</td></tr><tr><td>L</td><td>LOCAL</td></tr><tr><td>H</td><td>DX</td></tr></table> Control the terminals LOCAL and DX of the extended IC.	RF IN	RF MODE	L	LOCAL	H	DX						
RF IN	RF MODE													
L	LOCAL													
H	DX													
20	LEVEL	Signal level input control output terminal.The signal level is inputted to terminals K0-K3 when this terminal is the high level.												
21	K0	Key scan input terminals when pin 20 is low. "H" when active. Signal level input terminal when pin 20 is high. <table><tr><td>Key input of L</td><td>Signal level</td></tr><tr><td>none</td><td>LEVEL0</td></tr><tr><td>K0</td><td>LEVEL1</td></tr><tr><td>K0,K1</td><td>LEVEL2</td></tr><tr><td>K0,K1,K2</td><td>LEVEL3</td></tr><tr><td>K0,K1,K2,K3</td><td>LEVEL4</td></tr></table>	Key input of L	Signal level	none	LEVEL0	K0	LEVEL1	K0,K1	LEVEL2	K0,K1,K2	LEVEL3	K0,K1,K2,K3	LEVEL4
Key input of L	Signal level													
none	LEVEL0													
K0	LEVEL1													
K0,K1	LEVEL2													
K0,K1,K2	LEVEL3													
K0,K1,K2,K3	LEVEL4													
22	K1													
23	K2													
24	K3													
25	PLL	Connect to the terminal CE of PLL IC (LM7001 Q107).												
26	CL	Connect to the terminal CL of PLL IC,terminal CL of analogue switches(Q307,308, Q309,Q601,Q692),terminal SECK of digital delay (Q661) and terminal CLK of electro volume. (Q451)												
27	DATA	Connect to the terminal DATA of PLL IC,terminal DI of analogue switches,terminal SEDATA of digital delay,terminal SIN of extended IC and terminal CLK of electro volume. (Q451)												

### FM band setting

BAND1	BAND0	REGION	FREQUENCY RANGE	CH. SPACE
0	0	U.S.A.	87.5-108.0MHz	50kHz
0	1	Europe	87.50-108.00MHz	50kHz
1	0	Saudi Arabia	87.50-108.00MHz	50kHz
1	1	Japan	76.0-90.0MHz	100kHz

### AM band setting

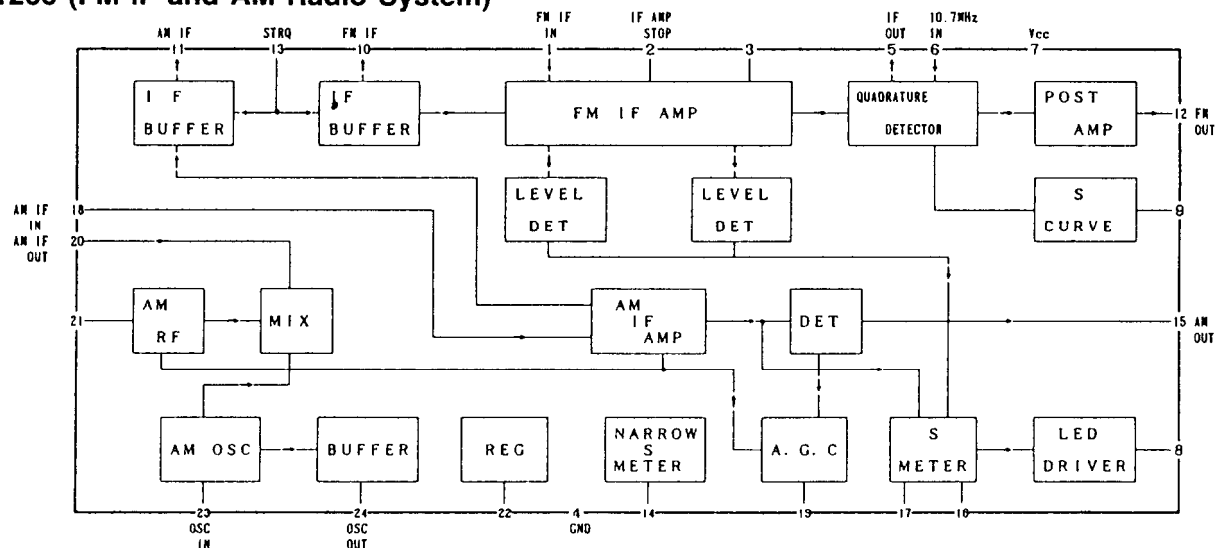
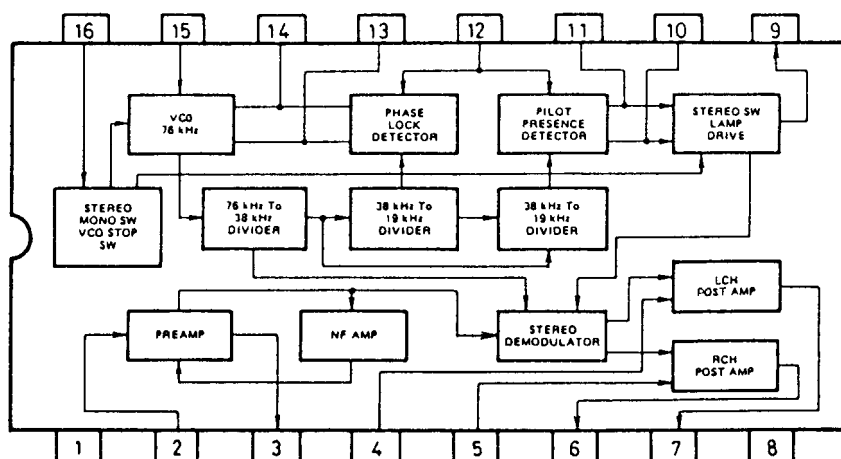
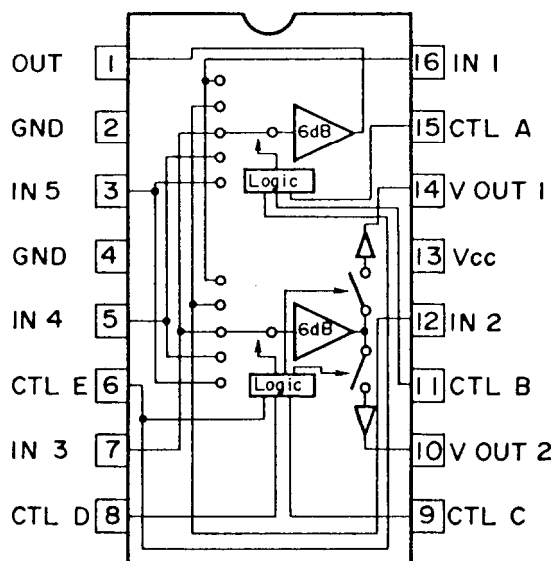
AM10K	REGION	FREQUENCY RANGE	CH. SPACE
1	U.S.A.	530-1710kHz	10kHz
0	Saudi Arabia	531-1602kHz	9kHz
0	Europe	522-1611kHz	9kHz

Pin No.	Symbol	Description
28	CE	Connect to the terminal CE of analogue switches and terminal CE of electro volume.
29	LED	LED indicator control output terminal.
30	X1	Ceramic oscillator connection terminal for main system clock.
31	X2	Connect to the 4.19MHz ceramic oscillator.
32	VSS	Ground terminal.
33	XT1	Ceramic oscillator connection terminal for sub system clock.
34	XT2	Not used.
35	INP MUT	Audio muting output terminal when input selector change over.
36	SIM MUT	SIM muting output terminal when input selector change over.
37	TU MUT	Tuner muting output terminal."H" when active.
38	REQ/MODE	Connect to the terminal REQ of digital delay.
39	RESET	Reset input terminal."L"when active.
40	D1	Digit output terminals."H" when active.
41	D2	
42	D3	
43	D4	
44	D5	
45	D6	
46	D7	
47	D8	
48	D9	
49	D10	
50	D11	
51	So	Segment output terminals."H" when active.
52	Sr	
53	Sp	
54	Sn	
55	Sm	
56	VLOAD	Pull-down resistor connection terminal of FIP controller/driver.
57	VPRE	Power supply terminal of output buffer of FIP controller/driver.
58	Sk	Segment and key scan output terminals. "H" when active.
59	Sj	
60	Sh	
61	Sg	
62	Sf	
63	Se	
64	VDD	Power supply terminal.(+5V)

Key Matrix

	No.	24	23	22	21
No.		K3	K2	K1	K0
4	Sa	SLEEP	SPEAKER REMOTE	SPEAKER MAIN	POWER
3	Sb	DELAY TIME	SURROUND MODE	CENTER MODE	MR
2	Sc	TAPE-2	TAPE-1	VIDEO-2	VIDEO-1
1	Sd	CD	PHONO	AM	FM
63	Se		S.DIRECT	SIM	REC OUT
62	Sf	4	3	2	1
61	Sg	8	7	6	5
60	Sh	CLASS SCAN	D.TUNING	0	9
59	Sj	UP	DOWN	MEMORY	MUTE/MODE
58	Sk	CLASS-D	CLASS-C	CLASS-B	CLASS-A
55	Sm	CENTER OFF	SELECTIVE TONE	CLASS-F	CLASS-E

# IC BLOCK DIAGRAMS AND DESCRIPTIONS

**Q104**
**LA1266 (FM IF and AM Radio System)**

**Q201**
**AN7470 (FM Stereo Decoder)**

**Q251**
**BA7625 (Video Selector Switch)**


#15	#11	#6	#1
A	B	E	MONITOR OUT
L	L	X	IN1
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

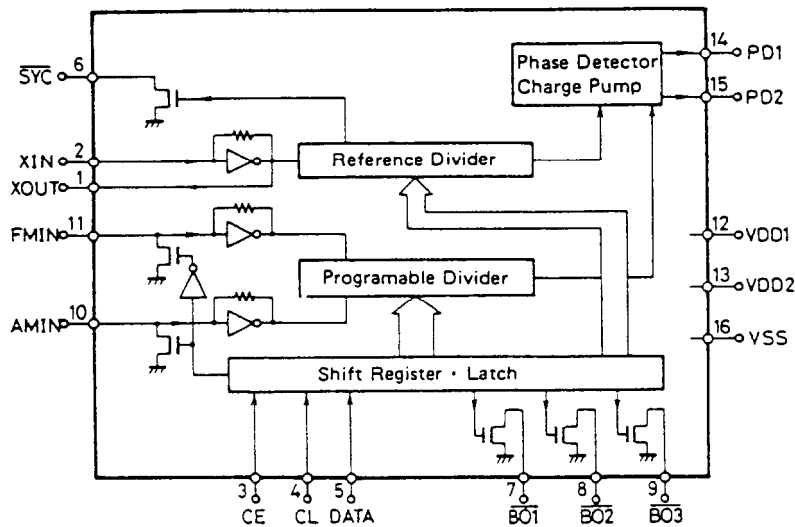
X: Don't care

#9	#8	#6	#14
C	D	E	VOUT 1
L	L	X	
H	L	X	IN2
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

#15	#11	#6	#10
A	B	E	VOUT 2
L	L	X	IN1
H	L	X	
L	H	X	IN3
H	H	L	IN4
H	H	H	IN5

# Q107

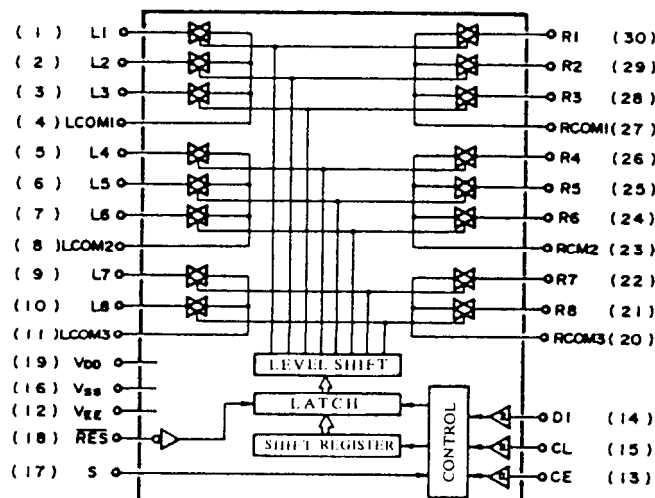
## LM7001 (PLL Synthesizer and Controller)



Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of microprocessor.
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of microprocessor.
5	DATA	Serial data input terminal. Connect to the DATA terminal of microprocessor.
6	SYN	Not used.
7	AUTO/MONO	AUTO/MONO selection output terminal. "L" when AUTO.
8	FM	FM band control output terminal. "L" when FM.
9	AM	AM band control output terminal. "L" when AM.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator terminal.
12	VDD 1	Power supply terminal for back-up.
13	VDD 2	Power supply terminal.
14	PD1	Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters.
15	PD2	
16	Vss	Ground terminal.



# **Q307, Q692** **LC7822N (Analogue switch)**



## **Q307**

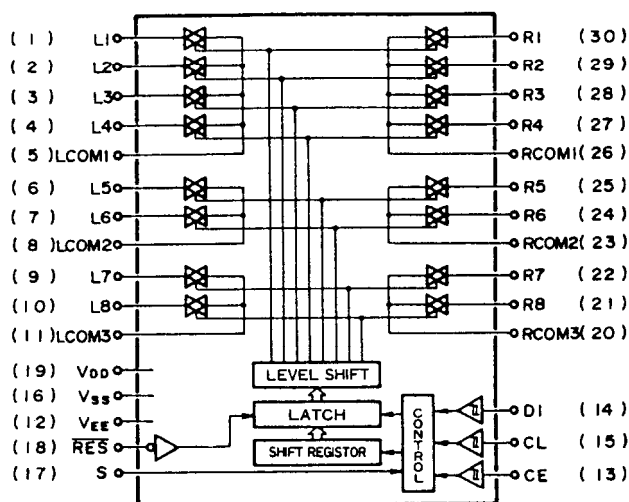
Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	PHONO'	Input/output terminals of audio signal of left channel. Control to the inside analogue switch at the serial data.	16	Vss	Ground terminal.
2	CD'		17	S	Selector terminal
3	TAPE-1		18	RES	Reset terminal. When power is turned on, the condition of the analog switch is not determined, but when this terminal is "L", all analog switches are off.
4	L COM 1		19	VDD	Power supply terminal. (+15V)
5	TAPE-1		20	R COM 3	Input/output terminals of audio signal of right channel. Control to the inside analogue switch at the serial data.
6	CD		21	TAPE-2	
7	PHONO		22	SOURCE	
8	L COM 2		23	R COM 2	
9	SOURCE		24	PHONO	
10	TAPE-2		25	CD	
11	L COM 3		26	TAPE-1	
12	Vss	Negative power supply terminal. (-15V)	27	R COM 1	
13	CE	Chip enable terminal. Connect the terminal SEL of microprocessor.	28	TAPE-1'	
14	DI	Serial data input terminal. Connect the terminal DATA of microprocessor.	29	CD'	
15	CL	Serial clock input terminal. Connect the terminal CLOCK of microprocessor.	30	PHONO'	

## **Q692**

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	DOLBY	Input/output terminals of audio signal of right channel when surround mode. Control the inside analogue switch at the serial data.	16	Vss	Ground terminal.
2	HALL		17	S	Selector terminal
3	SIM		18	RES	Reset terminal. When power is turned on, the condition of the analog switch is not determined, but when this terminal is "L", all analog switches are off.
4	L COM 1		19	VDD	Power supply terminal. (+15V)
5	TEST	Not used.	20	R COM 3	Input/output terminals of audio signal of right channel when mode SIM.
6	TEST B		21	SIM	
7	TEST A		22	SIM	
8	L COM 2		23	R COM 2	Dolby pro logic control signal.
9	SIM	Input/output terminals of audio signal of center channel when mode SIM.	24	TEST A	Control the inside analogue switch at the serial data.
10	SIM		25	TEST B	
11	L COM 3		26	TEST	
12	Vss	Negative power supply terminal. (-15V)	27	R COM 1	Input/output terminals of audio signal of left channel when surround mode. Control to the inside analogue switch at the serial data.
13	CE	Chip enable terminal. Connect the terminal SEL of microprocessor.	28	SIM	
14	DI	Serial data input terminal. Connect the terminal DATA of microprocessor.	29	HALL	
15	CL	Serial clock input terminal. Connect the terminal CLOCK of microprocessor.	30	DOLBY	

## Q308

## LC7821N (Analogue switch)



## Q308

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	TAPE-2'	Input/output terminals of audio signal of right channel. Control to the inside analogue switch at the serial data.	16	Vss	Ground terminal.
2	TUNER'		17	S	Selector terminal
3	VIDEO-1'		18	RES	Reset terminal. When power is turned on, the condition of the analog switch is not determined, but when this terminal is "L", all analog switches are off.
4	VIDEO-2'		19	VDD	Power supply terminal. (+15V)
5	L COM 1		20	L COM 3	Input/output terminals of audio signal of left channel. Control to the inside analogue switch at the serial data.
6	VIDEO-2		21	OFF	
7	VIDEO-1		22	TUNER	
8	L COM 2		23	L COM 2	
9	TUNER		24	VIDEO-1	
10	OFF		25	VIDEO-2	
11	L COM 3		26	L COM 1	
12	Vss	Negative power supply terminal. (-15V)	27	VIDEO-2'	
13	CE	Chip enable terminal. Connect the terminal SEL of microprocessor.	28	VIDEO-1'	
14	DI	Serial data input terminal. Connect the terminal DATA of microprocessor.	29	TUNER'	
15	CL	Serial clock input terminal. Connect the terminal CLOCK of microprocessor.	30	TAPE-2'	

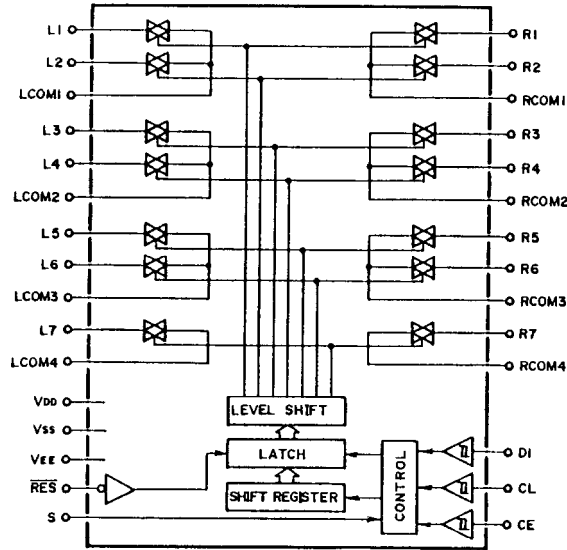
## Serial Data Composition

	A0	A1	A2	A3	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
	Address				Switch change over							
Q306	0	1	0	1	TAPE-2'	TUNER'	VIDEO-1'	VIDEO-2'	VIDEO-2	VIDEO-1	TUNER	
Q307	0	0	1	1	PHONO'	CD'	TAPE-1'	TAPE-1	CD	PHONO	SOURCE	TAPE-2
Q309	0	1	1	1	TAPE-1	VIDEO-2	SIM	SIM	DIRECT		DIRECT	
Q691	1	1	1	1	DOLBY	DOLBY	DOLBY	HALL	NORMAL	WIDE	CENTER OFF	
Q692	1	0	1	1	DOLBY	HALL	SIM	TEST	TESTA	TESTB	SIM	SIM

TX-906

TX-906

# **Q309, Q691** **LC7823N (Analogue switch)**



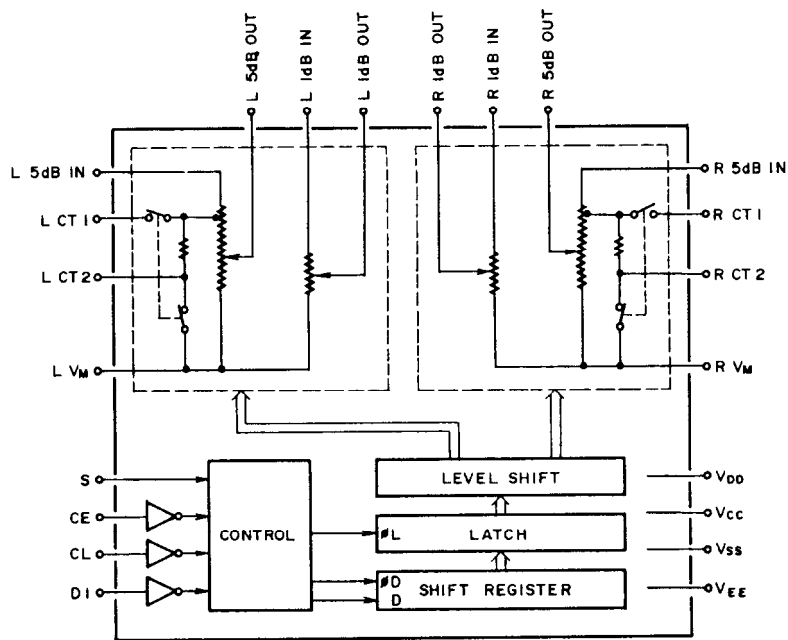
## **Q309**

Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	TAPE-1 REC	Recording output terminals.Control the analogue switch at the serial data.	16	Vss	Ground terminal.
2	VIDEO-2 OUT		17	S	Selector terminal
3	L COM 1		18	RES	Reset terminal.When power is turned on,the condition of the analog switch is not detrmind,but when this terminal iS "L",all analog switches are off.
4	SIM	Input/output terminals of audio signal of left channel when surround mode. Control the inside analogue switch at the serial data.	19	VDD	Power supply terminal.(+15V)
5	SIM		20	R COM 4	Input/output terminals of audio signal of right channel when surround mode. Control to the inside analogue switch at the serial data.
6	L COM 2		21	RIRECT	
7	DIRECT		22	R COM 3	
8	NC		23	NC	
9	L COM 3		24	DIRECT	
10	DIRECT		25	R COM 2	
11	L COM 4		26	SIM	
12	Vss	Negative power supply terminal. (-15V)	27	SIM	
13	CE	Chip enable terminal.Connect the terminal SEL of microprocessor.	28	R COM 1	Recording output terminals.Control the analogue switch at the serial data.
14	DI	Serial data input terminal.Connect the terminal DATA of microprocessor.	29	VIDEO-2 OUT	
15	CL	Serial clock input terminal.Connect the terminal CLOCK of microprocessor.	30	TAPE-1 REC	

## **Q691**

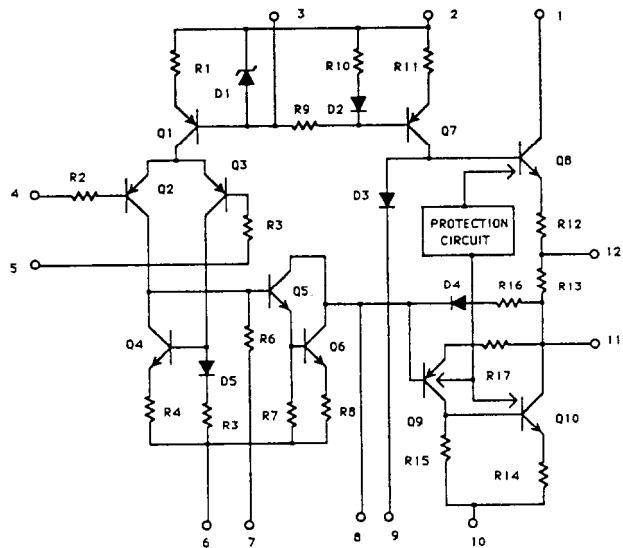
Pin No.	Terminal	Description	Pin No.	Terminal	Description
1	DOLBY	Input/output terminals of audio signal of left channel when surround mode. Control the inside analogue switch at the serial data.	16	Vss	Ground terminal.
2	DOLBY		17	S	Selector terminal
3	L COM 1		18	RES	Reset terminal.When power is turned on,the condition of the analog switch is not detrmind,but when this terminal iS "L",all analog switches are off.
4	DOLBY		19	VDD	Power supply terminal.(+15V)
5	HALL		20	R COM 4	Input/output terminals of audio signal of right channel when surround mode. Control to the inside analogue switch at the serial data.
6	L COM 2		21	C. OFF	
7	NORMAL		22	R COM 3	
8	WIDE		23	WIDE	
9	L COM 3		24	NORMAL	
10	C. OFF		25	R COM 2	
11	L COM 4		26	HALL	
12	Vss	Negative power supply terminal. (-15V)	27	DOLBY	
13	CE	Chip enable terminal.Connect the terminal SEL of microprocessor.	28	R COM 1	
14	DI	Serial data input terminal.Connect the terminal DATA of microprocessor.	29	DOLBY	
15	CL	Serial clock input terminal.Connect the terminal CLOCK of microprocessor.	30	DOLBY	

Q451  
LC7536 (Electro Volume)

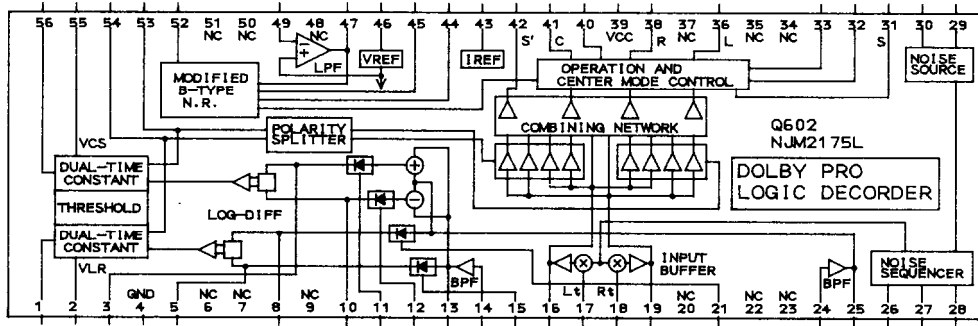


No.	TERMINAL	DESCRIPTION	No.	TERMINAL	DESCRIPTION
1	L 5dB IN	5dB step attenuator input terminal	17	CL	Serial data input terminal
3	L CT1	Terminal for loudness	18	DI	Serial data input terminal
4	L CT2	Terminal for loudness	19	CE	Serial data input terminal
5	L 5dB OUT	5dB step attenuator output terminal	21	VCC	Power supply terminal
6	L 1dB IN	1dB step attenuator input terminal	22	R VM	Common terminal of volume
8	L 1dB OUT	1dB step attenuator output terminal	23	R 1dB OUT	1dB step attenuator output terminal
9	L VM	Common terminal of volume	25	R 1dB IN	1dB step attenuator input terminal
10	VEE	Power supply terminal	26	R 5dB OUT	5dB step attenuator output terminal
12	S	Select terminal of address code during data format	27	R CT2	Terminal for loudness
13	VDD	Power supply terminal	28	R CT1	Terminal for loudness
14	VSS	Power supply terminal	30	R 5dB IN	5dB step attenuator input terminal

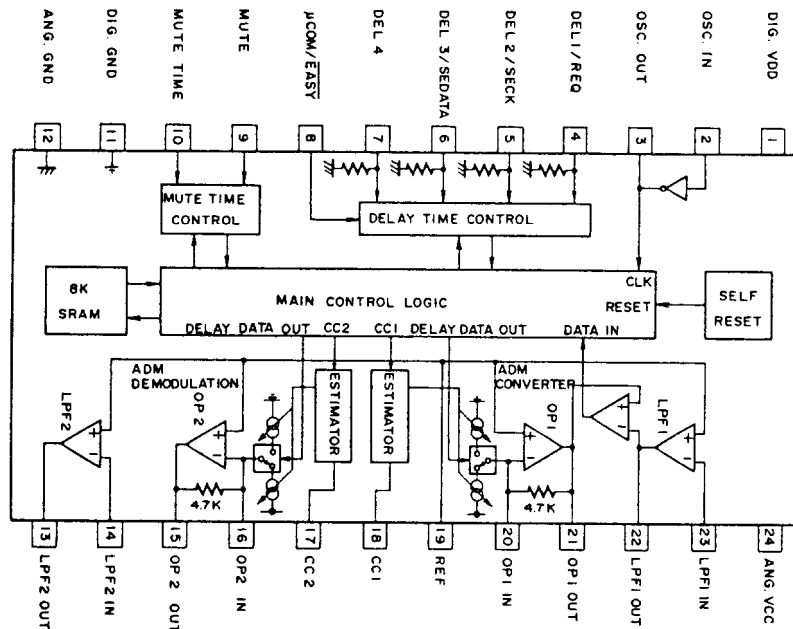
Q501, Q502  
μPC1298V (Power Amplifier Driver)



## Q602 NJM2175L (Dolby Pro Logic Decoder)



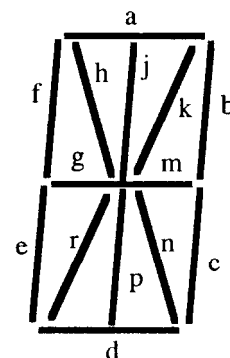
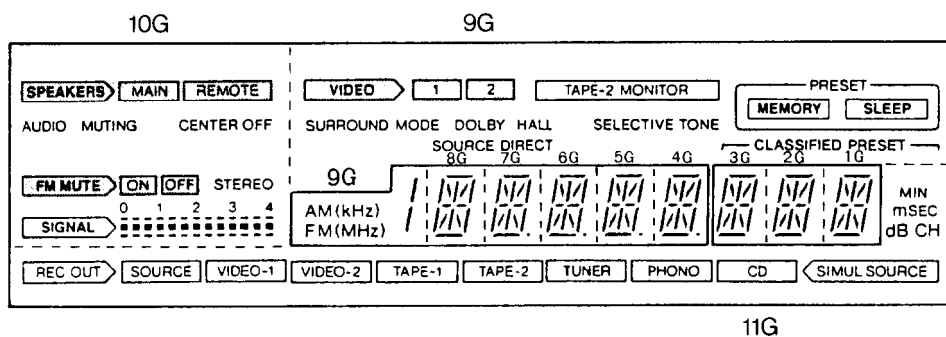
## Q661 M50198P (Digital Delay)



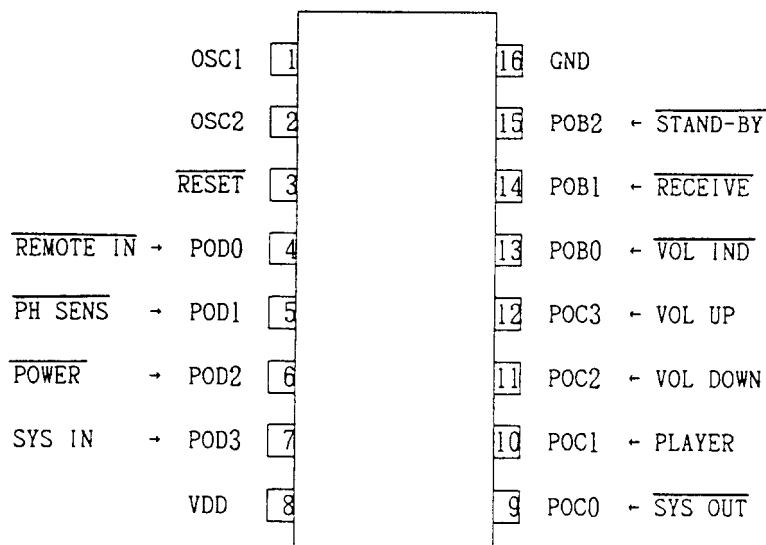
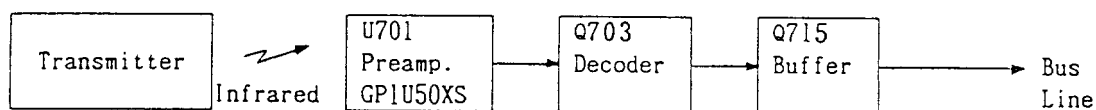
Pin no.	Symbol	Function
1	DIG. GND	Power supply terminal of digital section
2	OSC. IN	Connect the 3.27MHz ceramic oscillator or external clock.
3	OSC. OUT	
4	DEL1/REQ	Terminal DEL1 when the easy mode. Terminal REQ when the microprocessor.
5	DEL2/SECK	Terminal DEL2 when the easy mode. Terminal SECK when the microprocessor.
6	DEL3/SEDATA	Terminal DEL3 when the easy mode. Terminal SEDATA when the microprocessor.
7	DEL4	80μsec. mode control terminal.
8	COM/EASY	Microprocessor or easy mode changeover terminal
9	MUTE	Manual muting control terminal.
10	MUTE TIME	Auto muting time changeover terminal.
11	DIG. GND	Digital ground
12	ANG. GND	Analog ground
13	LPF2 OUT	Connect the secondary low pass filter between pins 13 & 14.
14	LPF2 IN	
15	OP2 OUT	Operation amplifier output terminal
16	OP2 IN	Operation amplifier input terminal
17	CC2	Current control
18	CC1	Current control
19	REF	Reference voltage.(2.5V)
20	OP1 IN	Operation amplifier input terminal
21	OP1 OUT	Operation amplifier outout terminal
22	LPF1 OUT	Connect the low pass filter between pins 22 and 23.
23	LPF1 IN	
24	ANG. VCC	Power supply terminal of analog section.

# Q701

## 11-BT-92GK (Fluorescent Indicator Tube)

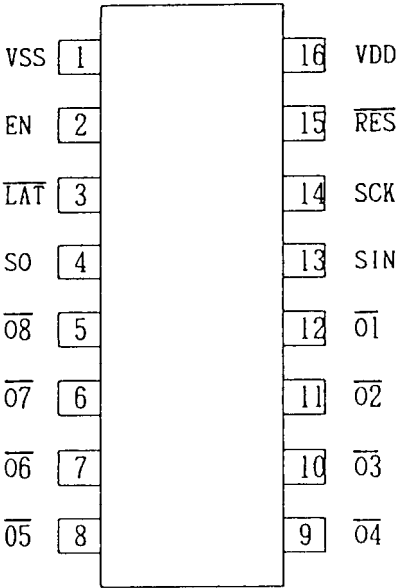


	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1
Sa	MIN	SPEAKERS	VIDEO/PRESET	a	a	a	a	a	a	a	a
Sb	mSEC	MAIN	1	b	b	b	b	b	b	b	b
Sc	CH	REMOTE	2	c	c	c	c	c	c	c	c
Sd	dB	AUDIO MUTING	TAPE-2 MONITOR	d	d	d	d	d	d	d	d
Se	SIMUL SOURCE	CENTER OFF	SURROUND MODE	e	e	e	e	e	e	e	e
Sf	Frame of CD	FM MUTE	DOLBY	f	f	f	f	f	f	f	f
Sg	Frame of PHONO	ON	HALL	g	g	g	g	g	g	g	g
Sh	Frame of TUNER	OFF	SELECTIVE TONE	h	h	h	h	h	h	h	h
Sj	Frame of TAPE-2	STEREO	SOURCE DIRECT	j	j	j	j	j	j	j	j
Sk	Frame of TAPE-1	SIGNAL	MEMORY	k	k	k	k	k	k	k	k
Sm	Frame of VIDEO-2	II(LEVEL1)	SLEEP	m	m	m	m	m	m	m	m
Sn	Frame of VIDEO-1	II(LEVEL2)	CLASSIFIED PREST	n	n	n	n	n	n	n	n
So	SOURCE.....CD				.	.	.	.			
Sp	Frame of SOURCE	II(LEVEL3)	AM(kHz)	p	p	p	p	p	p	p	p
Sr	REC OUT	II(LEVEL4)	FM(MHz)	r	r	r	r	r	r	r	r

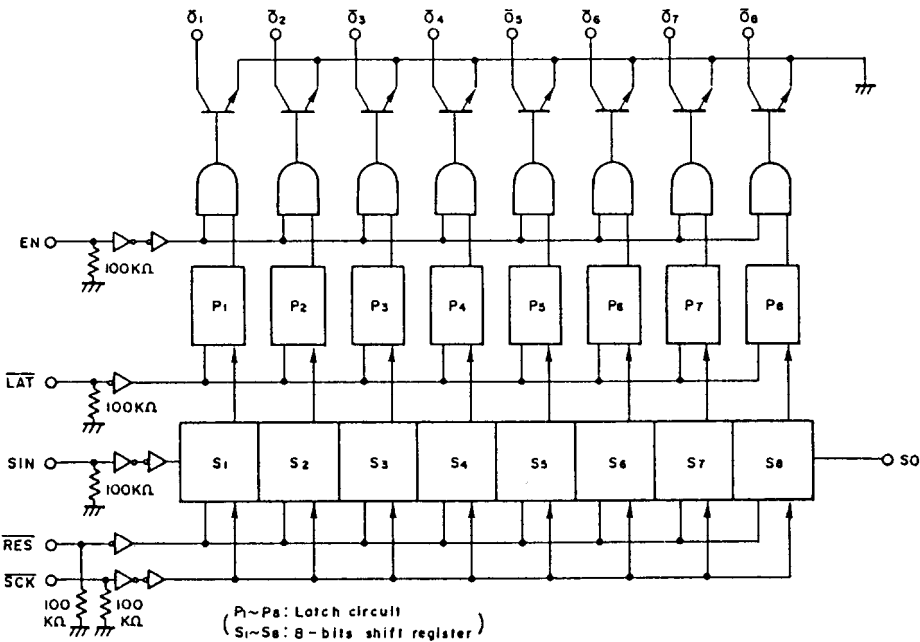
**Q703****μPD17103CX-531 (Remote Control Decoder)**

Pin No.	Symbol	Terminal	Description
1	OSC1	OSC	Connect to the 8.00MHz ceramic oscillator.
2	OSC2		
3	RES	RESET	System reset terminal. Active low.
4	POD0	REMOTE IN	Signal input terminal from preamp. for remote control. Active low.
5	POD1	PHONO SENSES	Phono detection input terminal. Active low.
6	POD2	POWER	Stand-by detection input terminal. During low input, only the POWER code is decoded.
7	POD3	SYS IN	System code input terminal.
8	V <sub>DD</sub>	+B	Power supply terminal.
9	POC0	SYS OUT	Output at this terminal are the custom code (16bits) remote control code input to REMOTE IN, data code (8bits), and the serial code (12bits) that has been converted corresponding to the decoded data code (8bits)
10	POC1	PLAYER	When the player PLAY/REEJECT is input, a high pulse of 200ms is output.
11	POC2	VOL DOWN	When the volume DOWN code is input, a high pulse of 120ms is output.
12	POC3	VOL UP	When the volume UP code is input, a high pulse of 120ms is output.
13	POB0	VOL IND	During the output of VOLUME UP/DOWN, a pulse ( $\overline{\text{T}}\text{T}\text{T}\text{T}$ = 250ms) is output. (Not used.)
14	POB1	RECEIVE	This is the display output for remote control reception. Output is low when decoded code is being recieved.
15	POB2	STAND-BY	STAND-BY indication terminal.
16	V <sub>SS</sub>	GND	Ground terminal.

Q705, Q851  
μPD6345C (Extended IC)

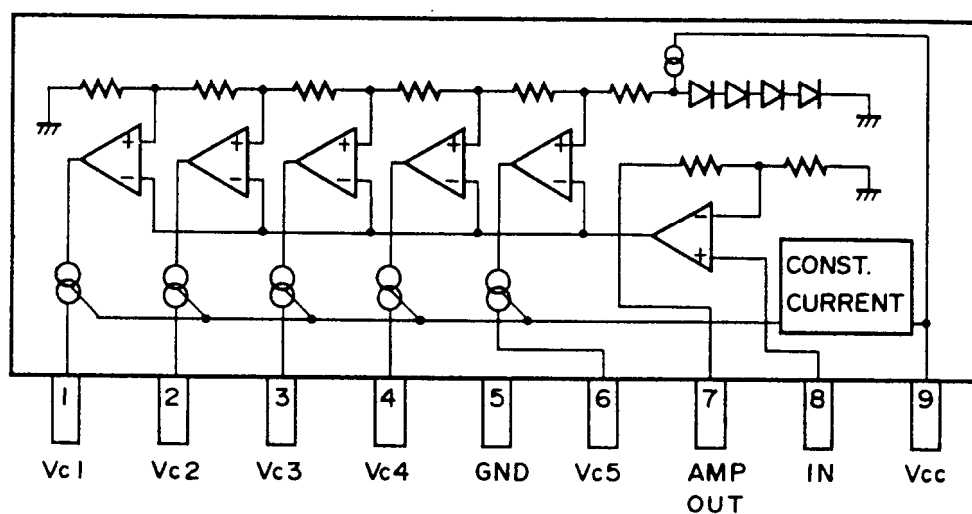


Pin No.	Symbol	Q705	Q851
1	VSS	Ground terminal.	
2	EN	Chip enable input terminal. Connect to the terminal EN of the microprocessor. Active H.	
3	LAT	Latch input terminal. Connect to the terminal LAT of the microprocessor.	
4	SO	Serial data output terminal.	
5	O8	NR OFF indicator output terminal. Active low.	Headphone relay control output terminal. Active low.
6	O7	NR ON indicator output terminal. Active low.	Rear speaker relay control output terminal. Active low.
7	O6	HB OFF indicator output terminal. Active low.	Remote speaker relay control output terminal. Active low.
8	O5	HB ON indicator output terminal. Active low.	Main speaker relay control output terminal. Active low.
9	O4	LOCAL indicator output terminal. Active low.	Center preout muting control output terminal. Active low.
10	O3	DX indicator output terminal. Active low.	Not used.
11	O2	AUTO indicator output terminal. Active low.	Video selector switch control output terminal.
12	O1	MONO indicator output terminal. Active low.	Video selector switch control output terminal.
13	SIN	Serial data input terminal. Connect to the terminal DATA of the microprocessor.	
14	SCK	Serial clock input terminal. Connect to the terminal CLOCK of the microprocessor.	
15	RESET	Reset input terminal. Active L.	
16	VDD	Power supply terminal.	

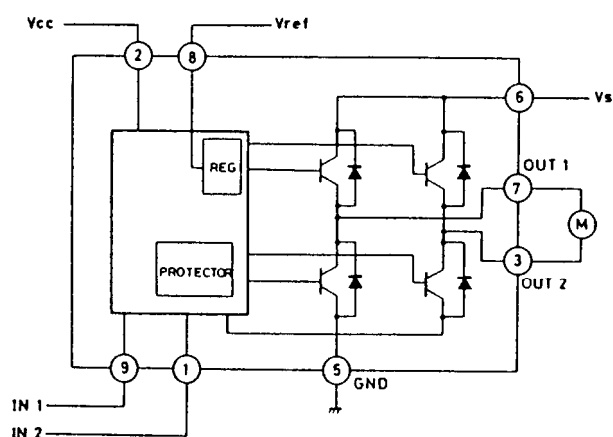




**Q706**  
**BA6125 (Signal meter driver)**



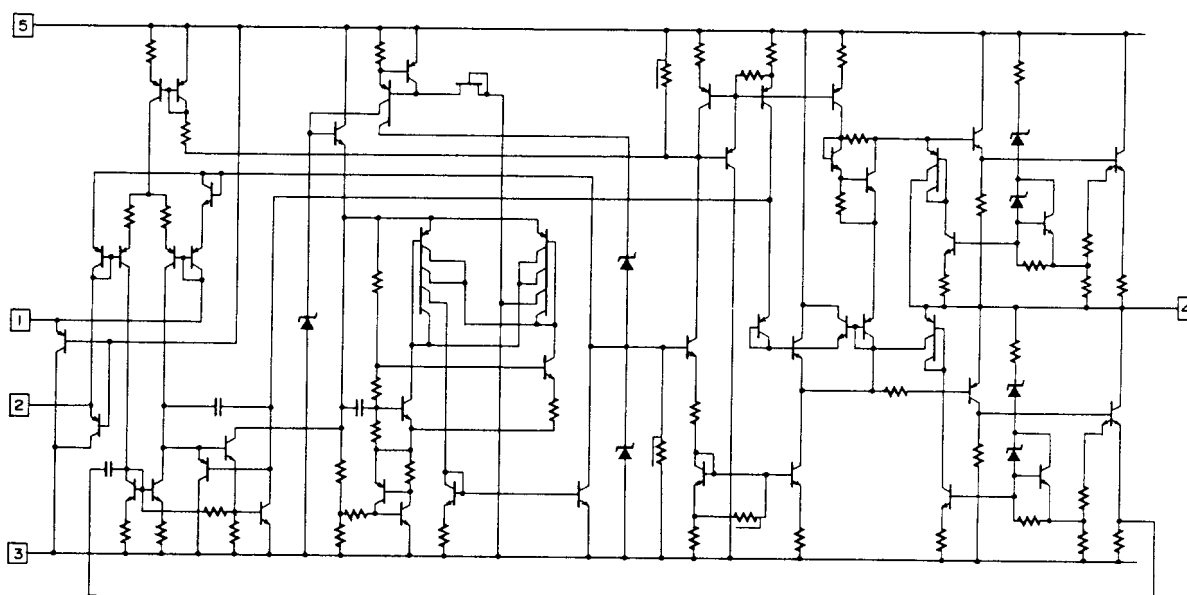
**Q871**  
**TA7291S (Volume driver)**



INPUT		OUTPUT		MODE
IN 1	IN 2	OUT 1	OUT 2	
0	0	$\infty$	$\infty$	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

CCW: Counter clockwise direction  
 CW: Clockwise direction

**Q571, Q572**  
**SI-18751 (Power amplifier)**



## ADJUSTMENT PROCEDURES

### • Preparation

#### 1. Input

FM mono: 1kHz, 75kHz devi., 60dB/ $\mu$ V

FM stereo: 1kHz, 75kHz devi., 60dB/ $\mu$ V

Pilot signal 19kHz 7.5kHz devi.

AM: 400Hz 30% mod.

#### 2. Outputs

Connect the non-inductive type resistors of 8ohms to the main speaker, remote speaker, and rear speaker terminals unless otherwise noted.

#### 3. Standard Knob Position

TAPE MONITOR 2 .....OFF

VOLUME .....Maximum

BASS/TREBLE/BALANCE/INPUT

BALANCE .....Center

MUTING .....OFF

REC SELECTOR .....SOURCE

INPUT SELECTOR .....CD

SPEAKERS .....ON

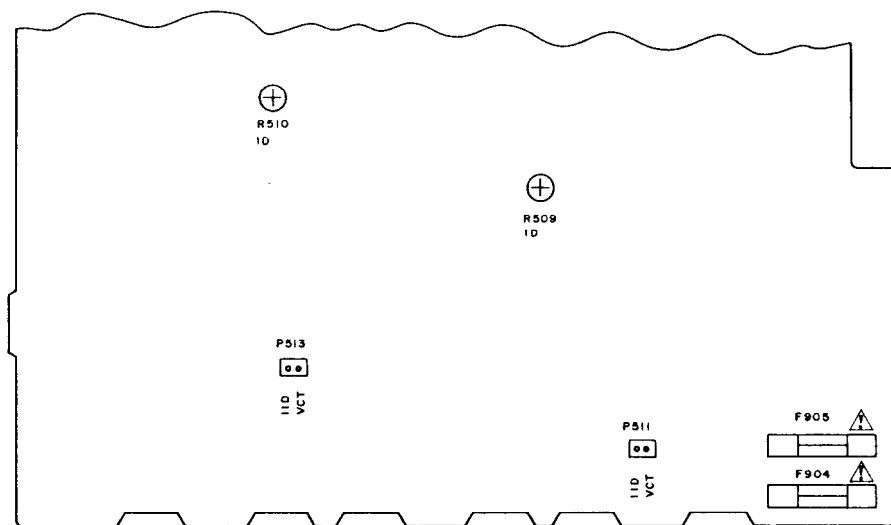
S.T.C. ....OFF

SURROUND MODE .....OFF

CENTER MODE .....WIDE

DELAY TIME .....20mS

SIM/REAR LEVEL .....Center



SELECTOR AND POWER AMPLIFIER PC BOARD

### Amplifier section

#### Idling Current Adjustment

Connect the DC voltmeter to the terminals IID and VCT on the pre., and main amplifier pc board. Adjust the semi-fixed resistors R509, and R510 so that indication of voltmeter is  $5 \pm 0.5$ mV.

NOTE: Adjust after switching on for 5 minutes.

## FM section

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuning frequency	Output indicator	Adjustment point	Adjust for	Remarks
FM IF/RF	1	Fig. 1	99.1MHz 1kHz, 75kHz devi. 65dBf (60dB)		99.1MHz	DC voltmeter	L101	0±20mV	FM MUTE/MODE switch: ON/STEREO Repeat the steps 1 and 3 until no further adjustment is necessary.
	2					AC voltmeter	IFT on the front end	Maximum	
	3					Distortion analyzer	L102	Minimum	
VCO		Fig. 2	99.1MHz 1kHz, 75kHz devi. 65dBf (60dB)		99.1MHz	Frequency counter	R201	19kHz±10Hz	
Stereo Distortion		Fig. 3	99.1MHz, Ext. mod., 65dBf (60dB)	Channel L or R 1kHz	99.1MHz	Distortion analyzer	IFT on the front end	Minimum	Don't turn more than ±180°
Stereo Separation	1	Fig. 3	99.1MHz Ext. modulation 65dBf (60dB)	Channel L 1kHz	99.1MHz	Channel R AC voltmeter	R202	Minimum	Maximum and same separation.
	2			Channel R 1kHz		Channel L AC voltmeter		Minimum	
Muting Level		Fig. 3	99.1MHz 17.2dBf (12dB) (120V model) 19.2dBf (14dB) (Other model)		99.1MHz	AUTO indicator	R101	Light on	
Signal Level		Fig. 3	99.1MHz 35dBf (30dB) (120V model) 33dBf (28dB) (Other models)		99.1MHz	4th Signal indicator	R102	Light on	

## AM section

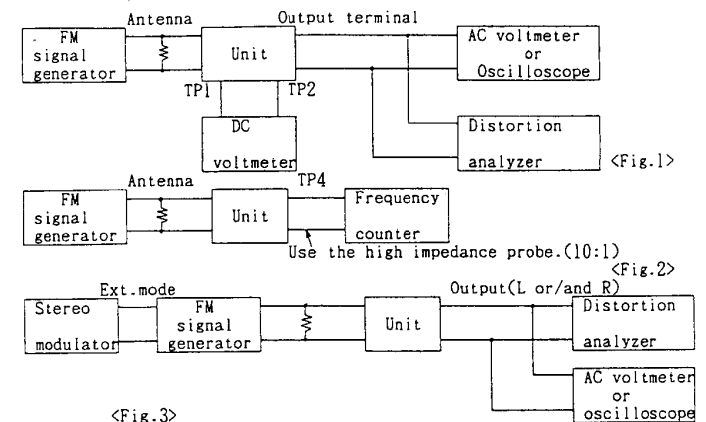
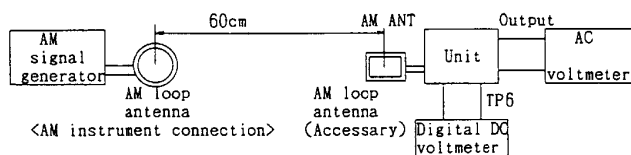
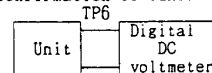
Step	AM SG output	Tuning frequency	Output indicator	Adjustment point	Adjust for
1		530kHz (522kHz)	Digital DC voltmeter	OSC coil on RF block L151	1.2±0.1V (1.3±0.1V)
2	600kHz (603kHz) 400Hz, 30% mod. 60dB/m	600kHz (603kHz)	AC voltmeter	RF coil on RF block L151	Maximum
3	990kHz 400Hz, 30% mod. 60dB/m	990kHz	AC voltmeter	L152	Maximum

( ): 9kHz step model

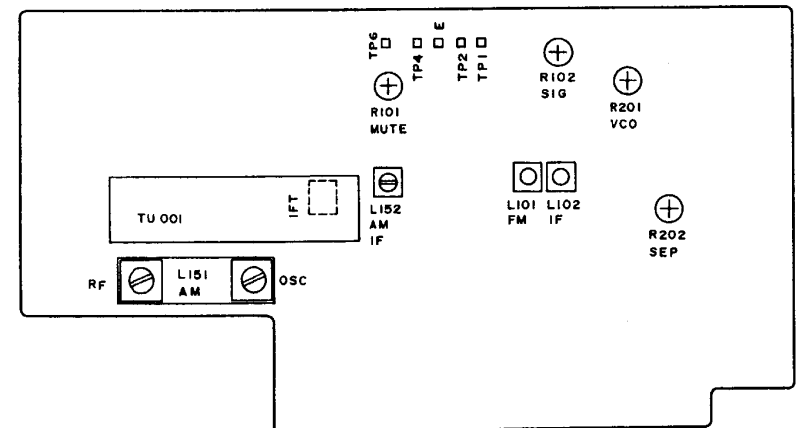
## Reference Specifications

FM tuned voltage: 87.5MHz—108.00MHz  
1.6±0.4V—8.0±0.4V
 AM tuned voltage: 530kHz 1.2±0.5V } 120V model  
 1710kHz 7.0±0.5V }  
 522kHz 1.3±0.4V } 230/240 model  
 1611kHz 7.5±0.4V }  
 531kHz 1.3±0.4V } Worldwide models  
 1602kHz 7.5±0.4V }
Auto stop level: AM: Less than 65dB/m  
FM: Less than 16dB/μ

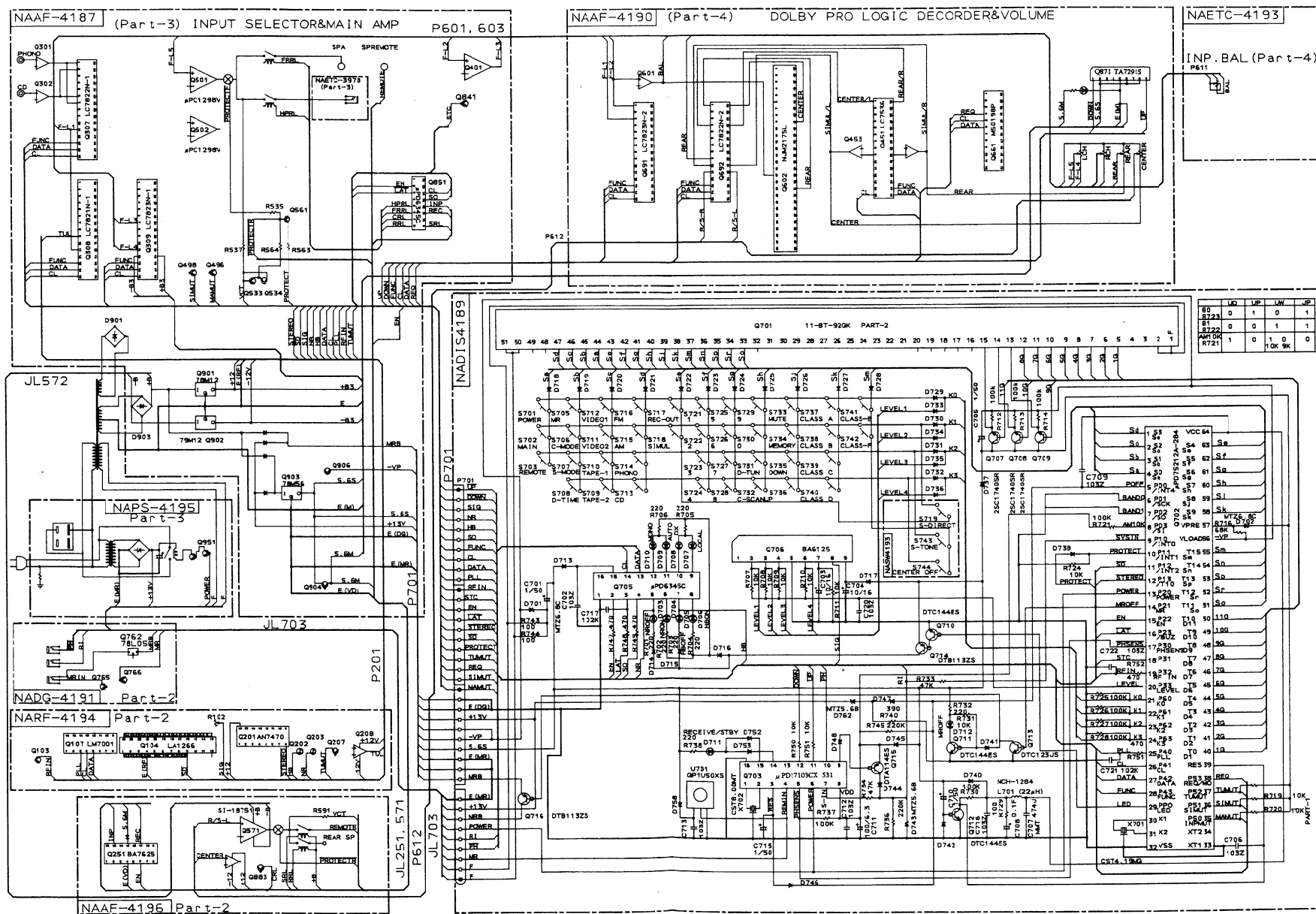
## Confirmation of tuned voltage



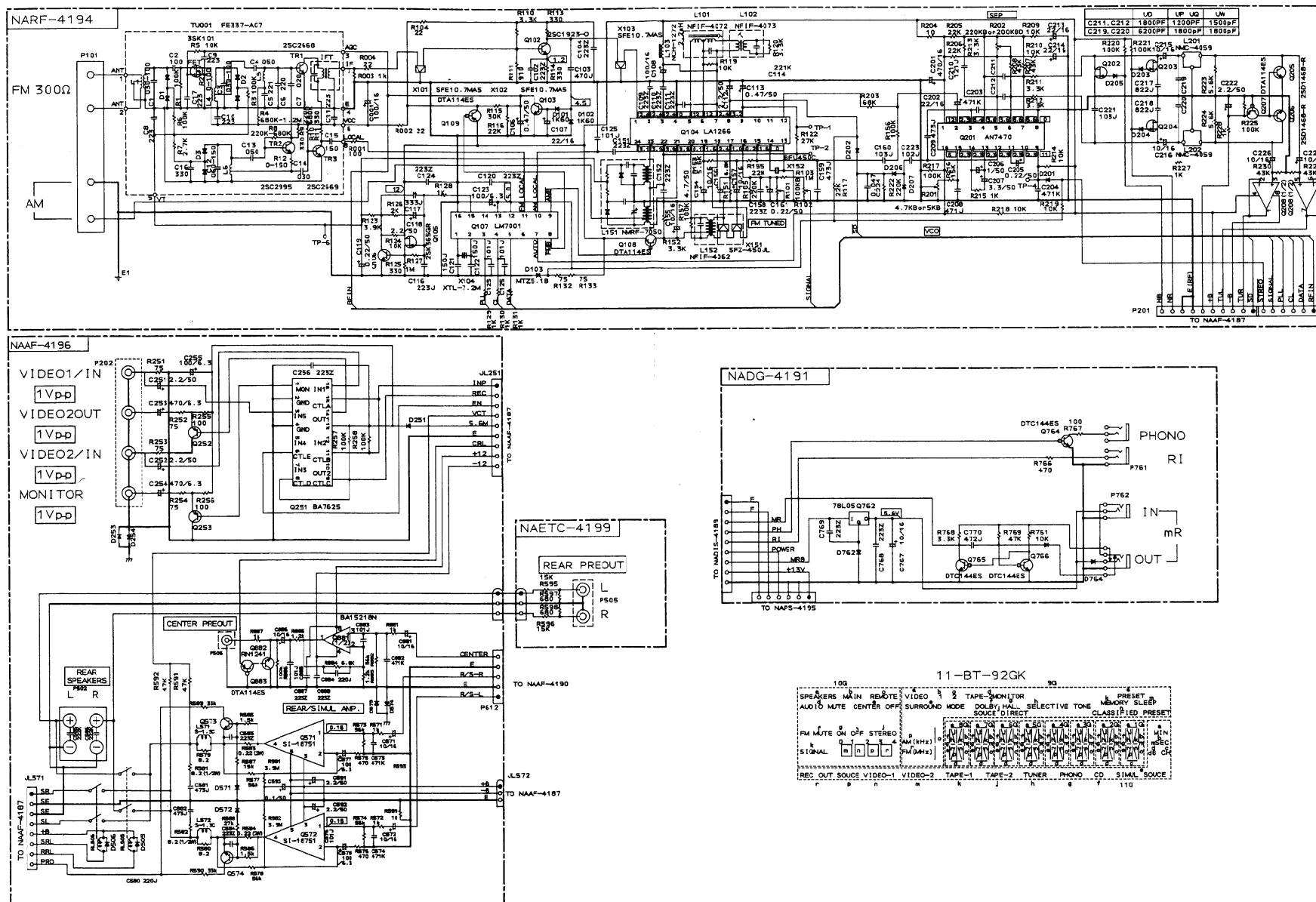
&lt;Fig.3&gt;

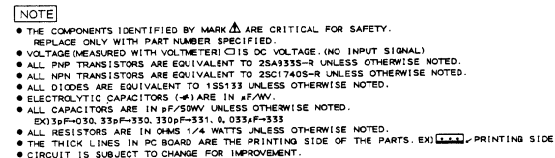


Tuner circuit pc board

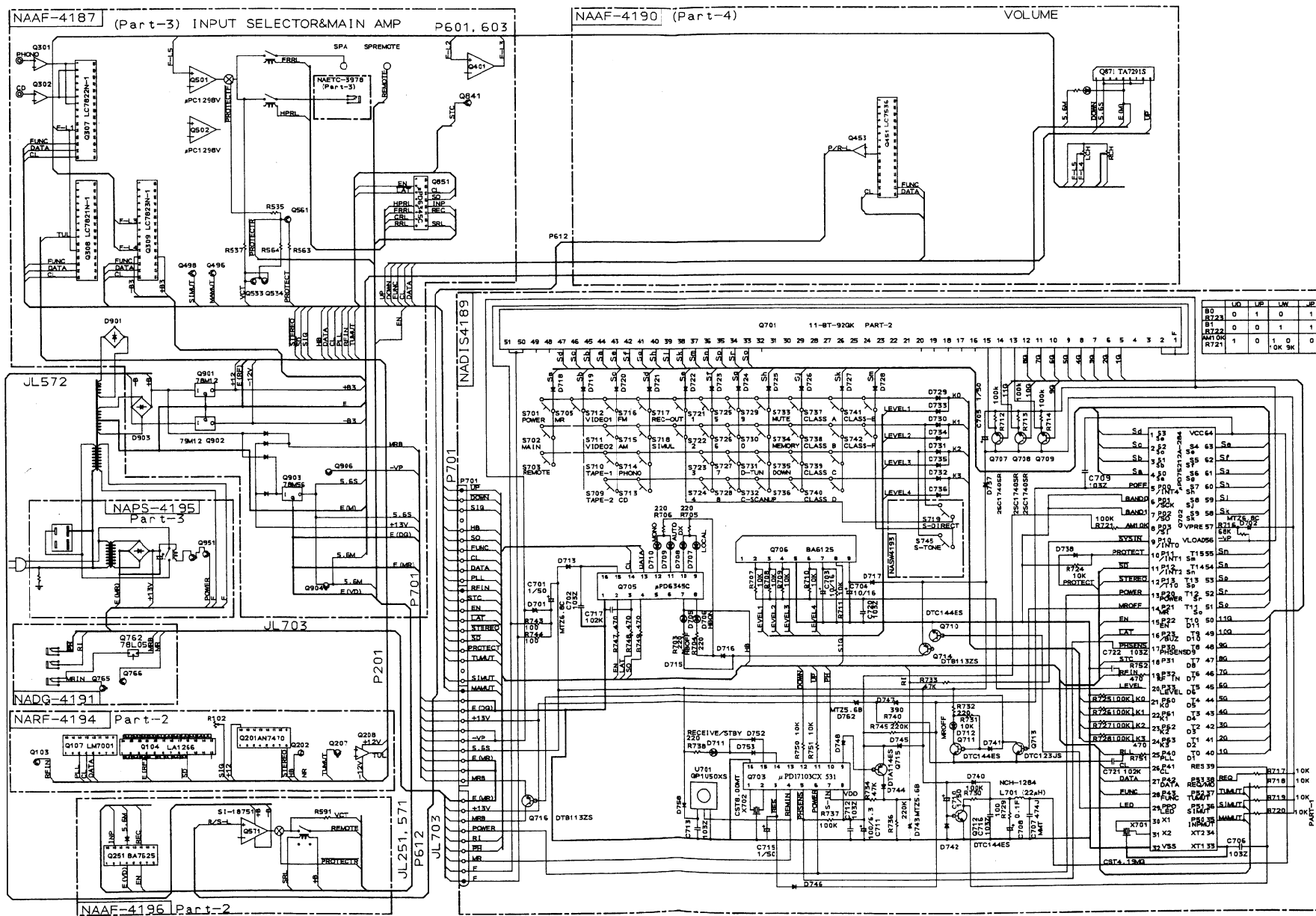


**SCHEMATIC DIAGRAM**  
**MODEL TX-906 120V MODEL**  
**TUNER AND VIDEO SECTION**





**SCHEMATIC DIAGRAM**  
**MODEL TX-904 120V MODEL**  
**CONNECTION DIAGRAM OF MICROPROCESSOR**



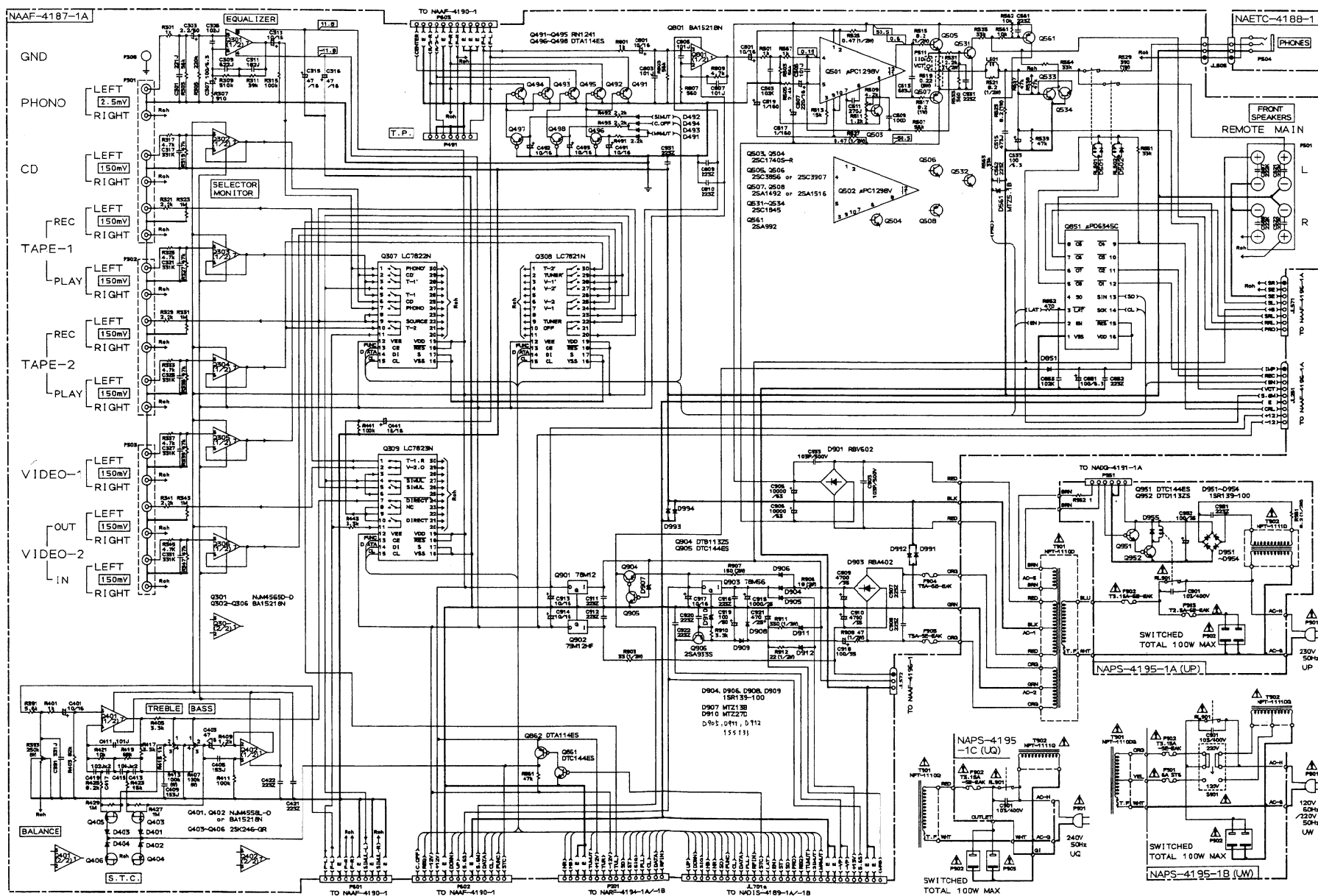




# SCHEMATIC DIAGRAM

## MODEL TX-906 OTHER MODELS

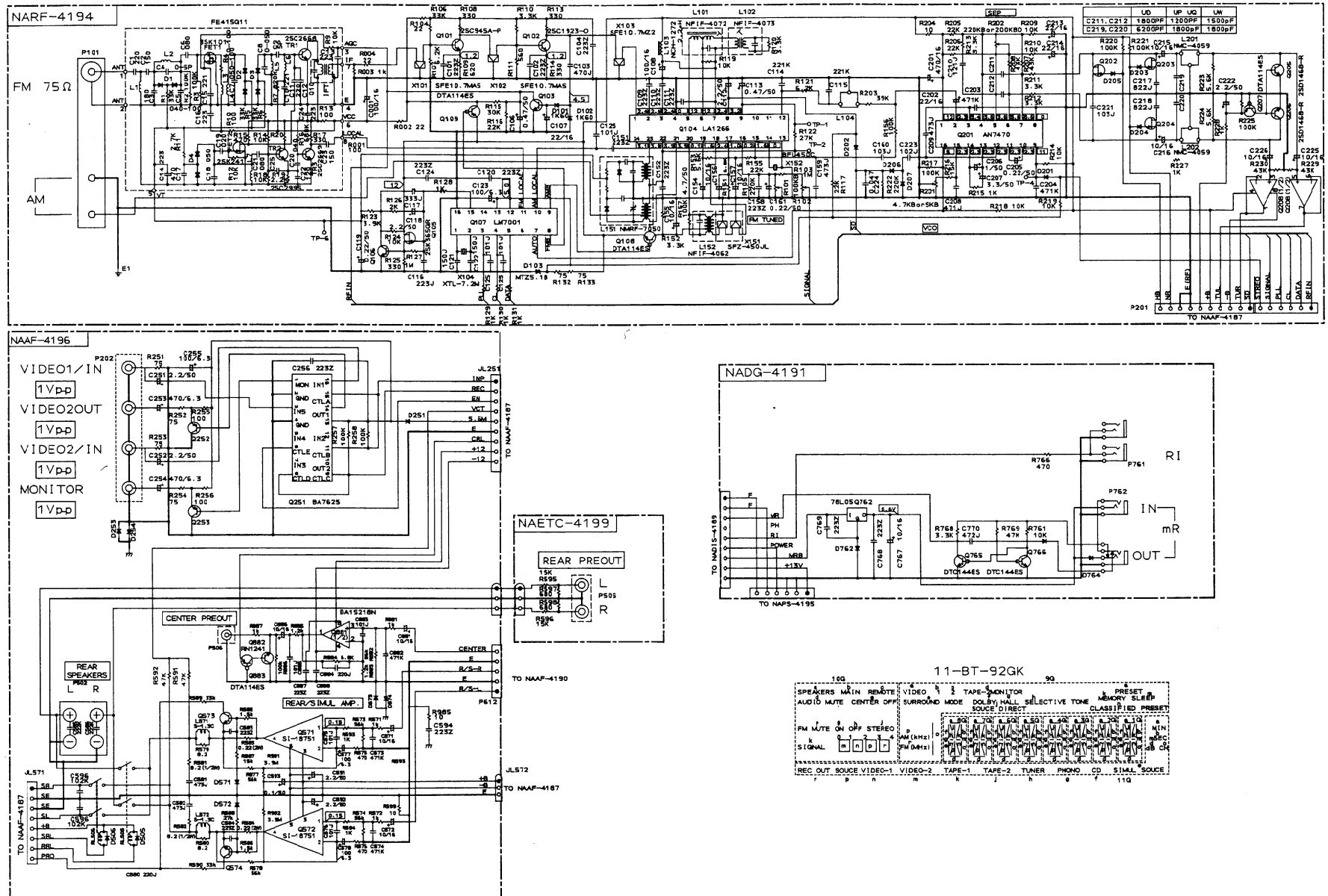
### AUDIO SECTION



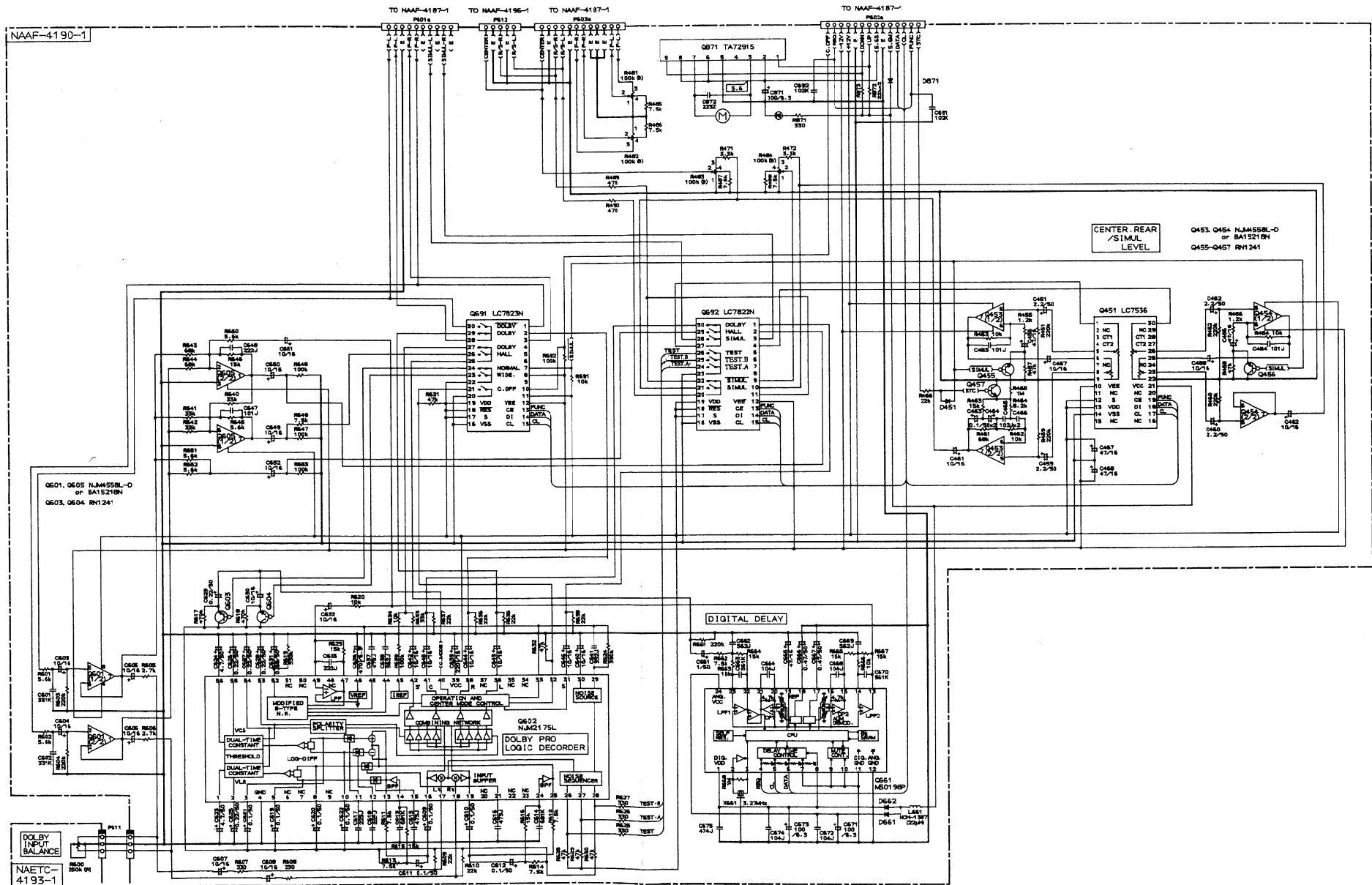
# SCHEMATIC DIAGRAM

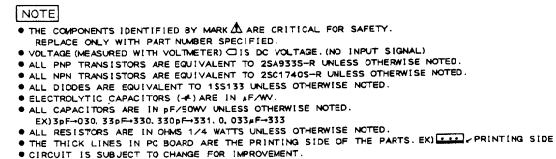
## MODEL TX-906 OTHER MODELS

### TUNER AND VIDEO SECTION



**ONKYO CORPORATION**

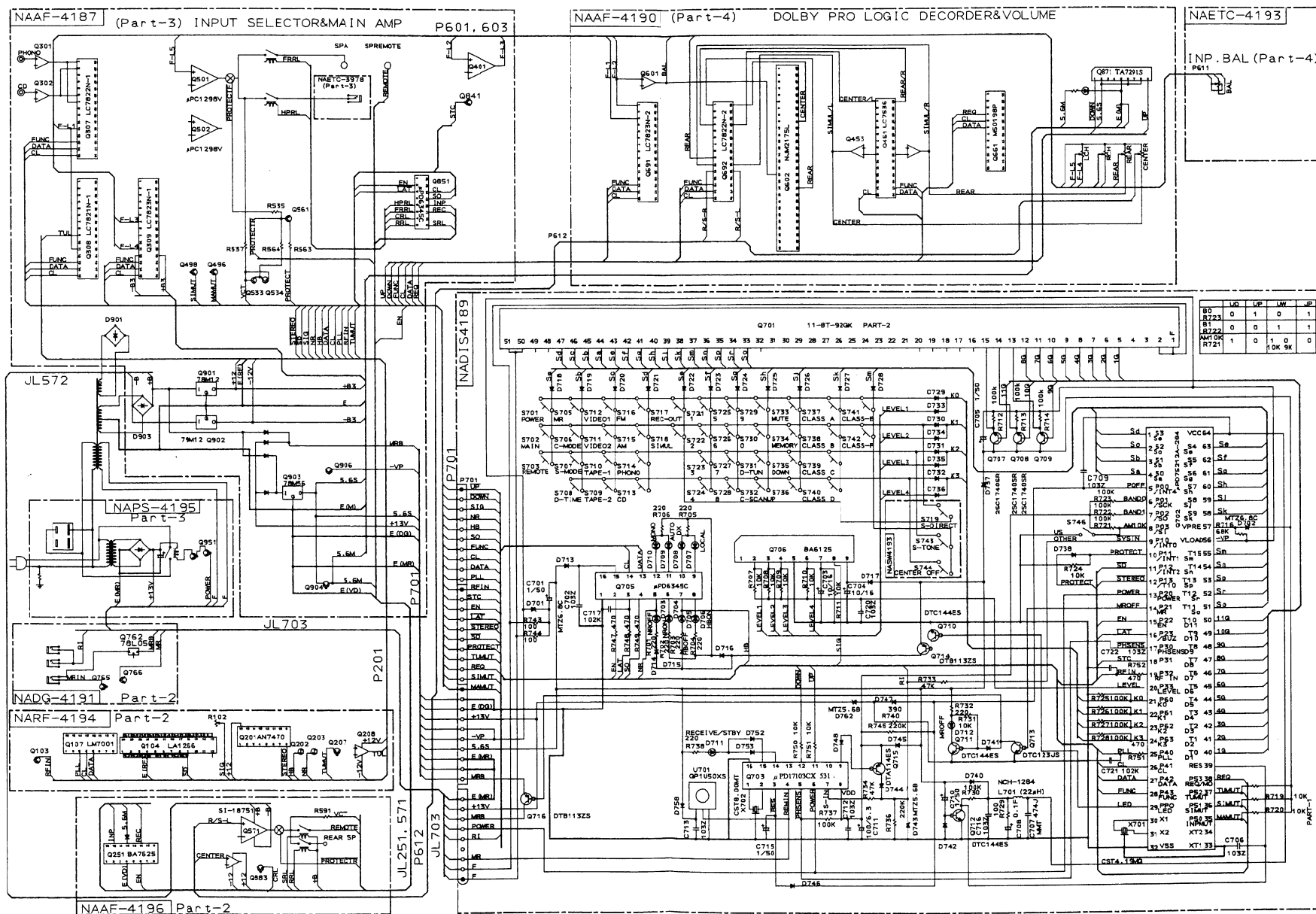




# SCHEMATIC DIAGRAM

## MODEL TX-906 OTHER MODELS

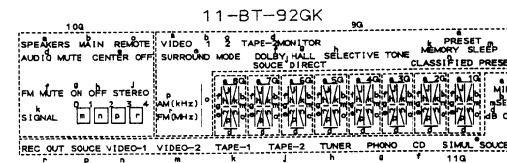
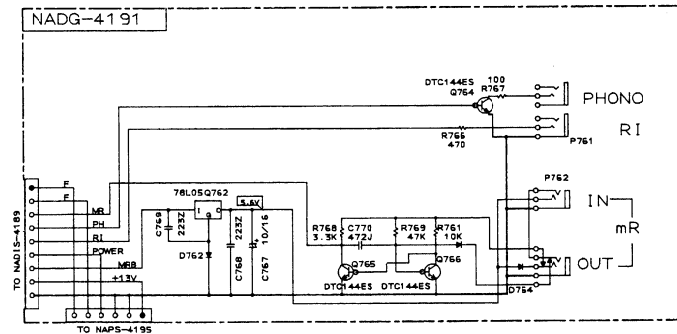
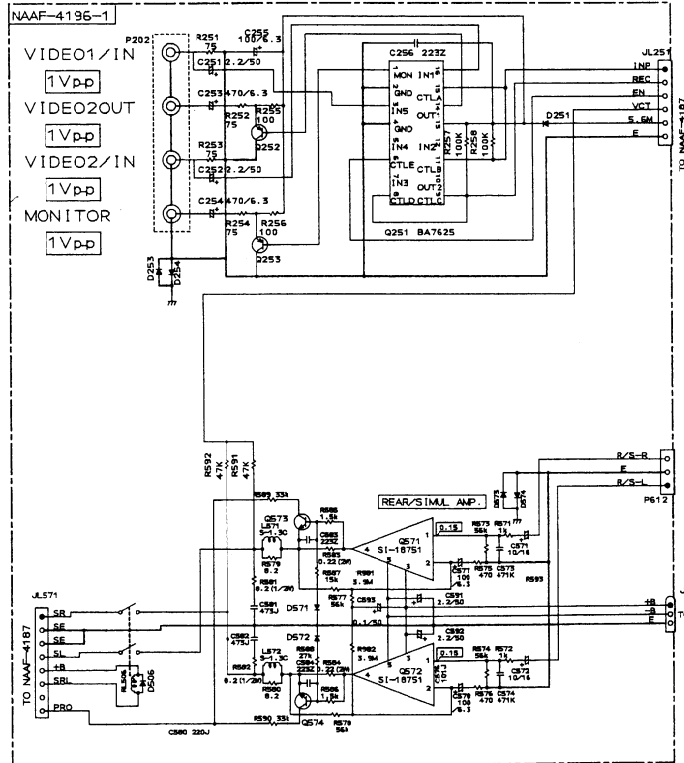
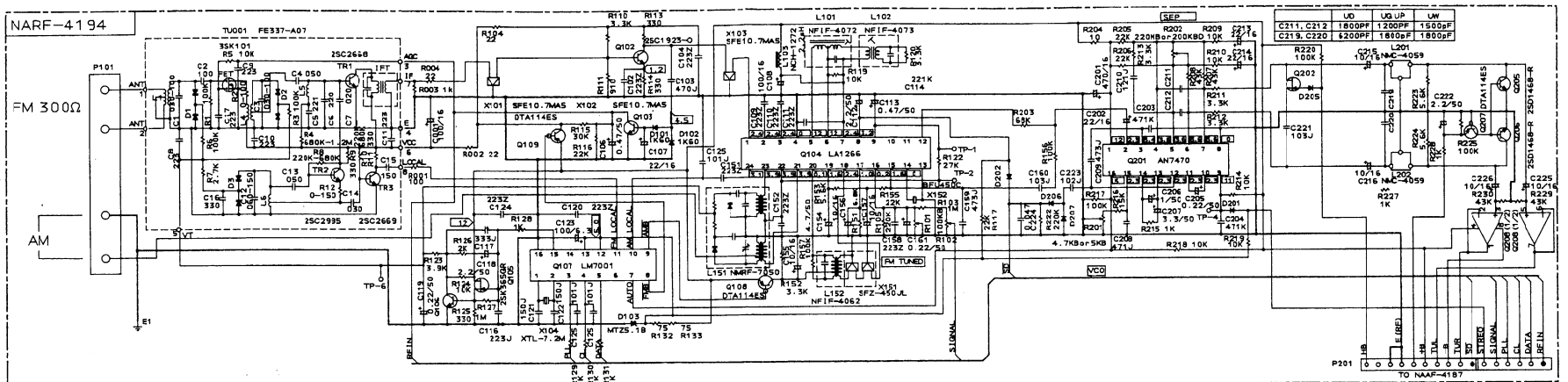
### CONNECTION DIAGRAM OF MICROPROCESSOR



# SCHEMATIC DIAGRAM

## MODEL TX-904 120V MODEL

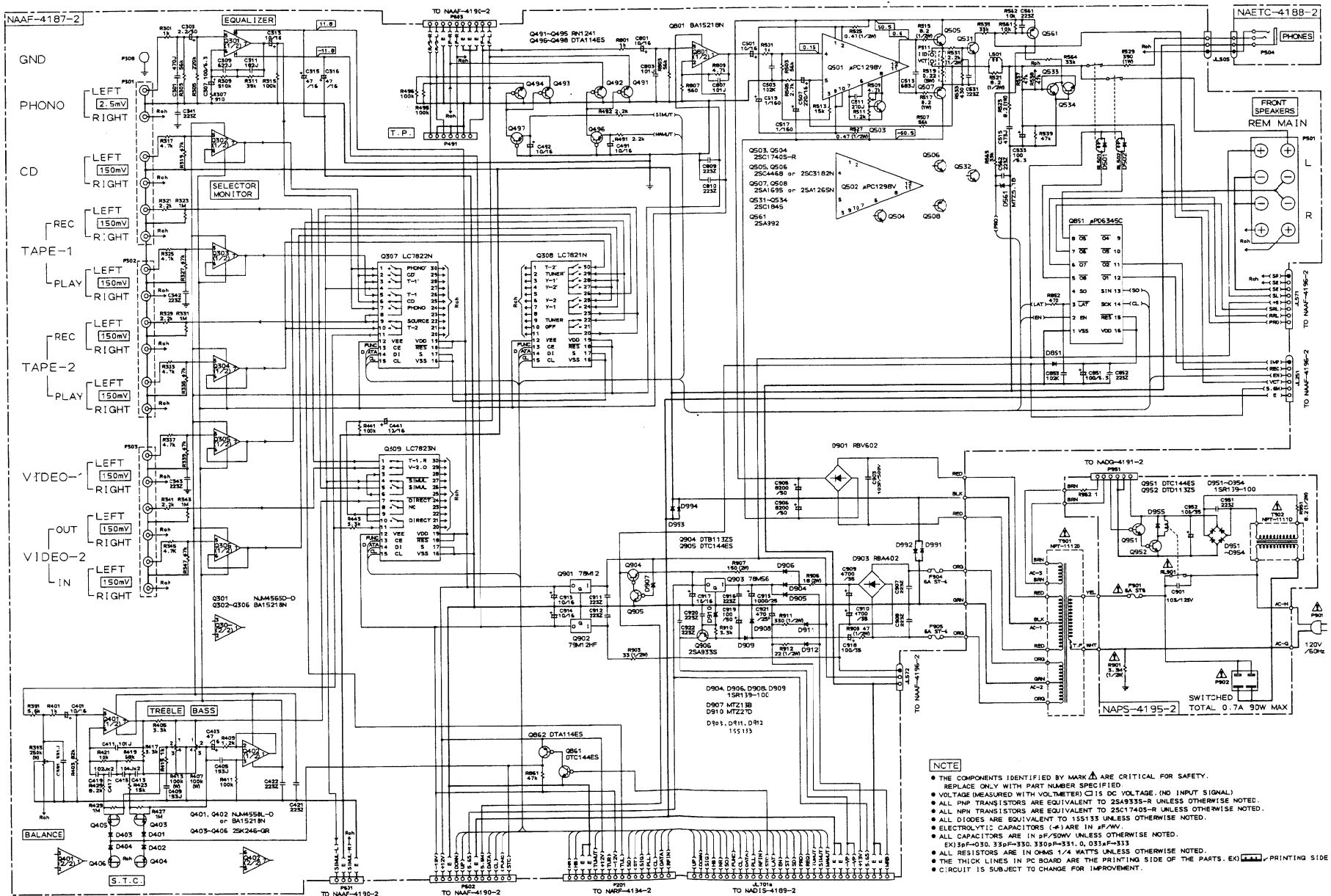
### TUNER AND VIDEO SECTION



# SCHEMATIC DIAGRAM

## MODEL TX-904 120V MODEL

### AUDIO SECTION

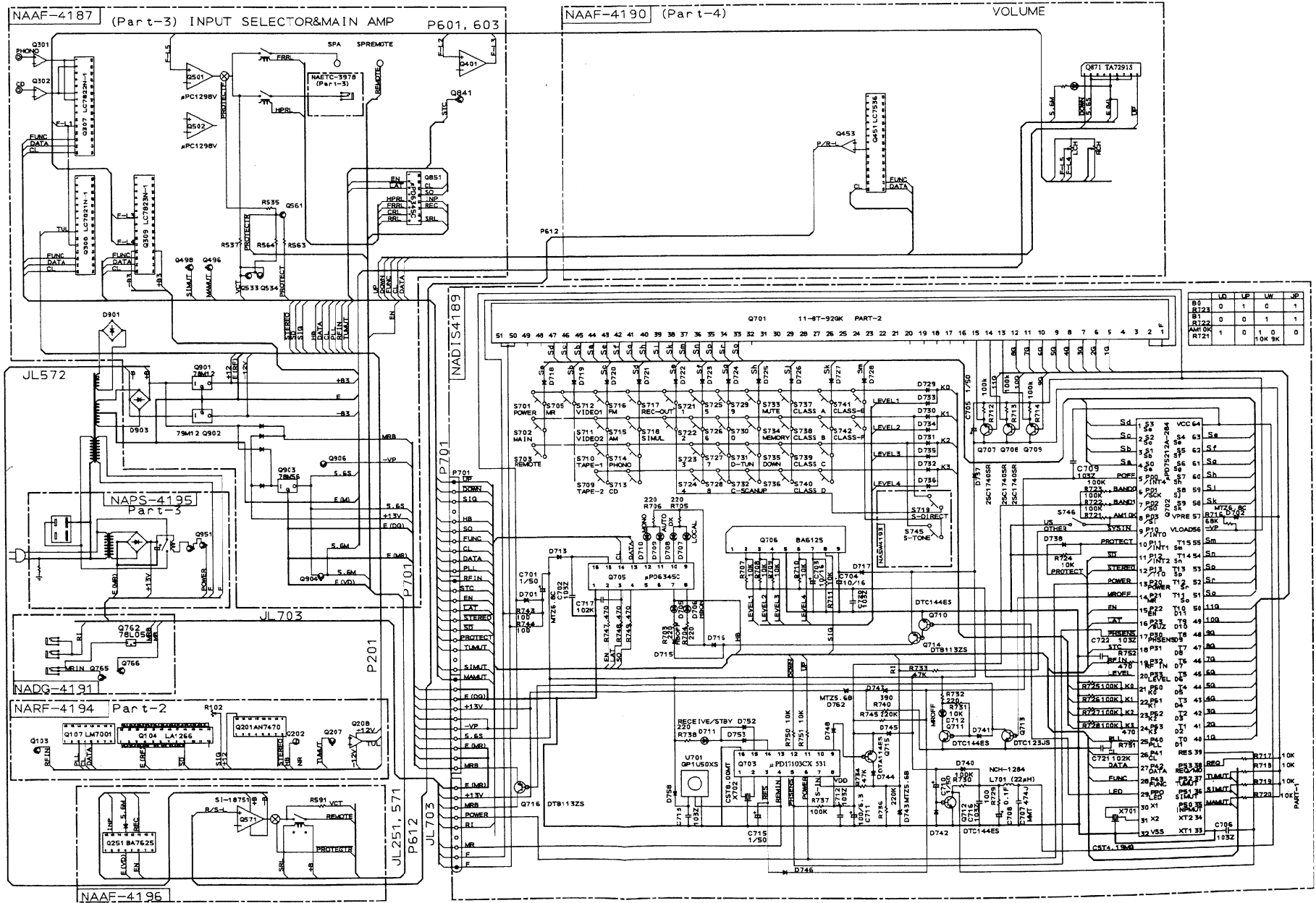


ONKYO CORPORATION

# SCHEMATIC DIAGRAM

## MODEL TX-904 OTHER MODELS

### DIAGRAM OF MICROPROCESSOR

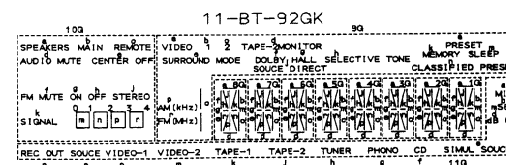
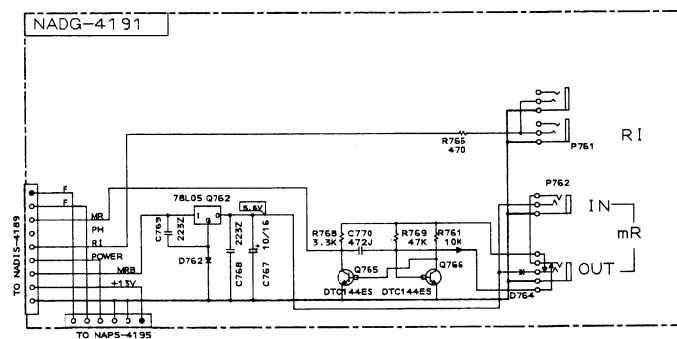
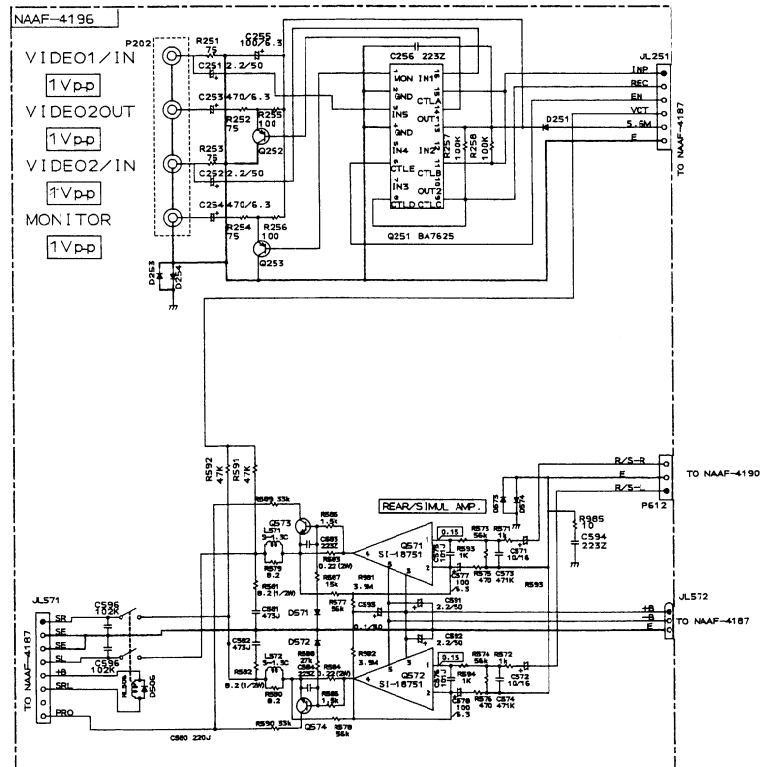
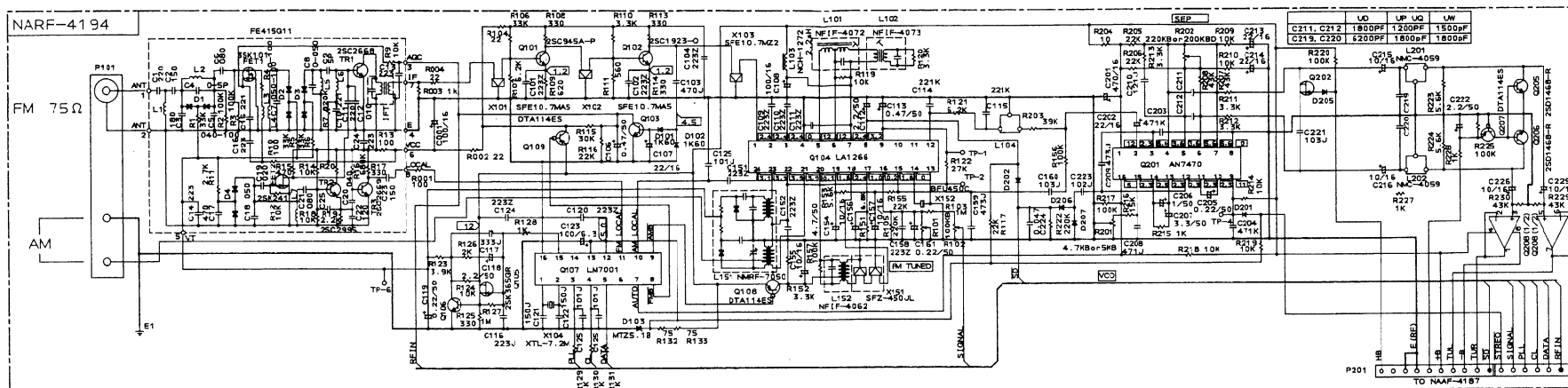




# SCHEMATIC DIAGRAM

## MODEL TX-904 OTHER MODELS

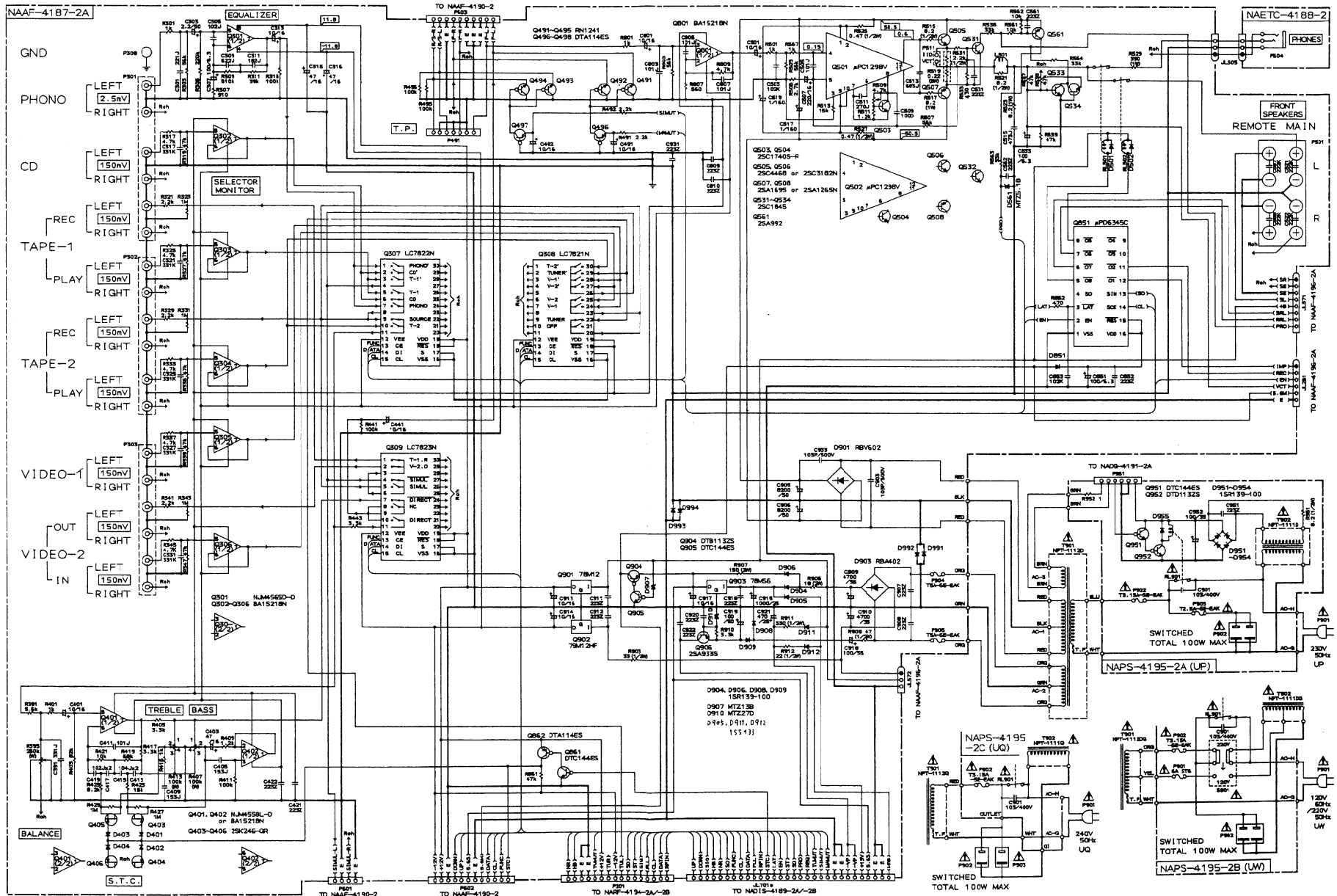
### TUNER AND VIDEO SECTION



# SCHEMATIC DIAGRAM

## MODEL TX-904 OTHER MODELS

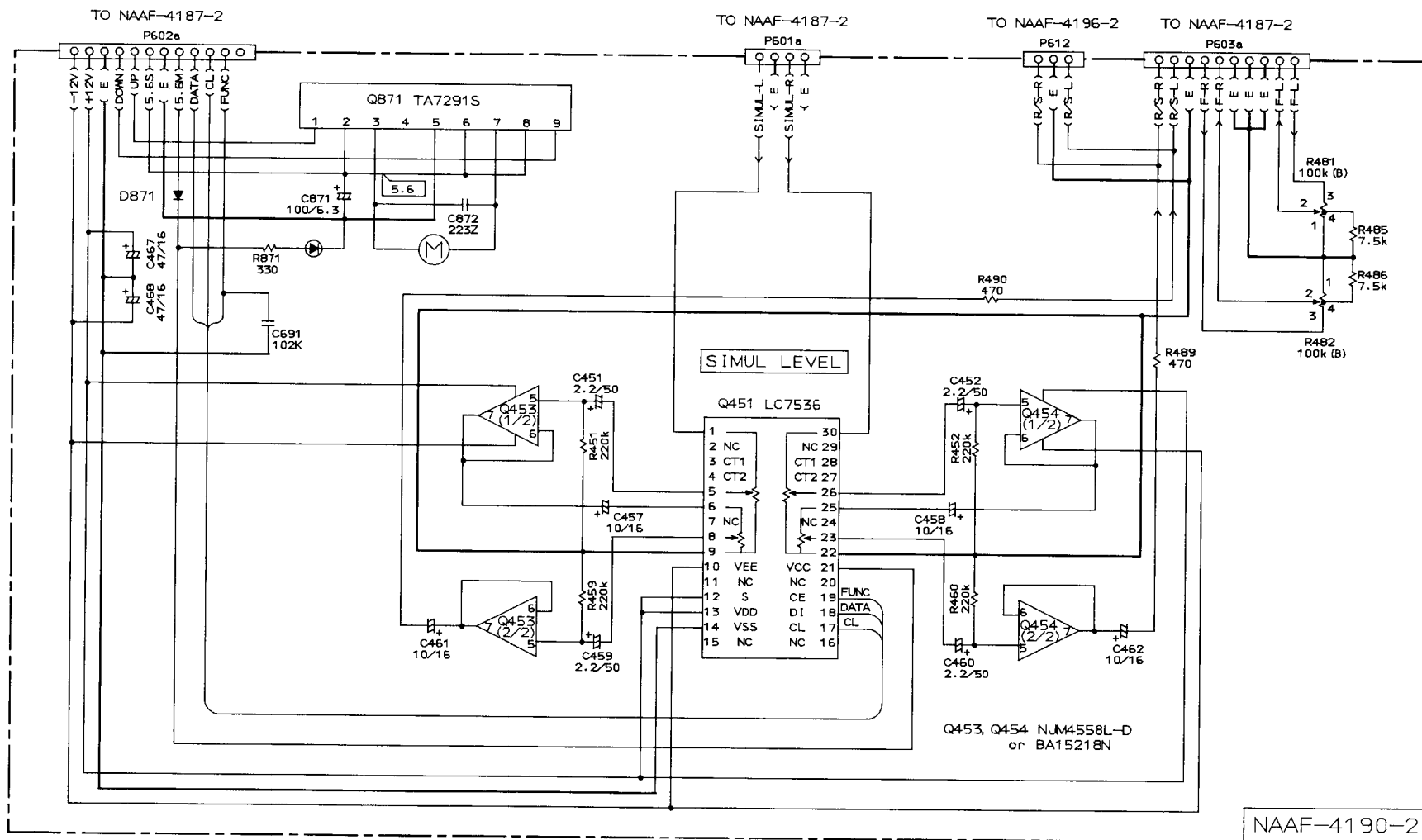
### AUDIO SECTION



# SCHEMATIC DIAGRAM

## MODEL TX-904 120V MODEL

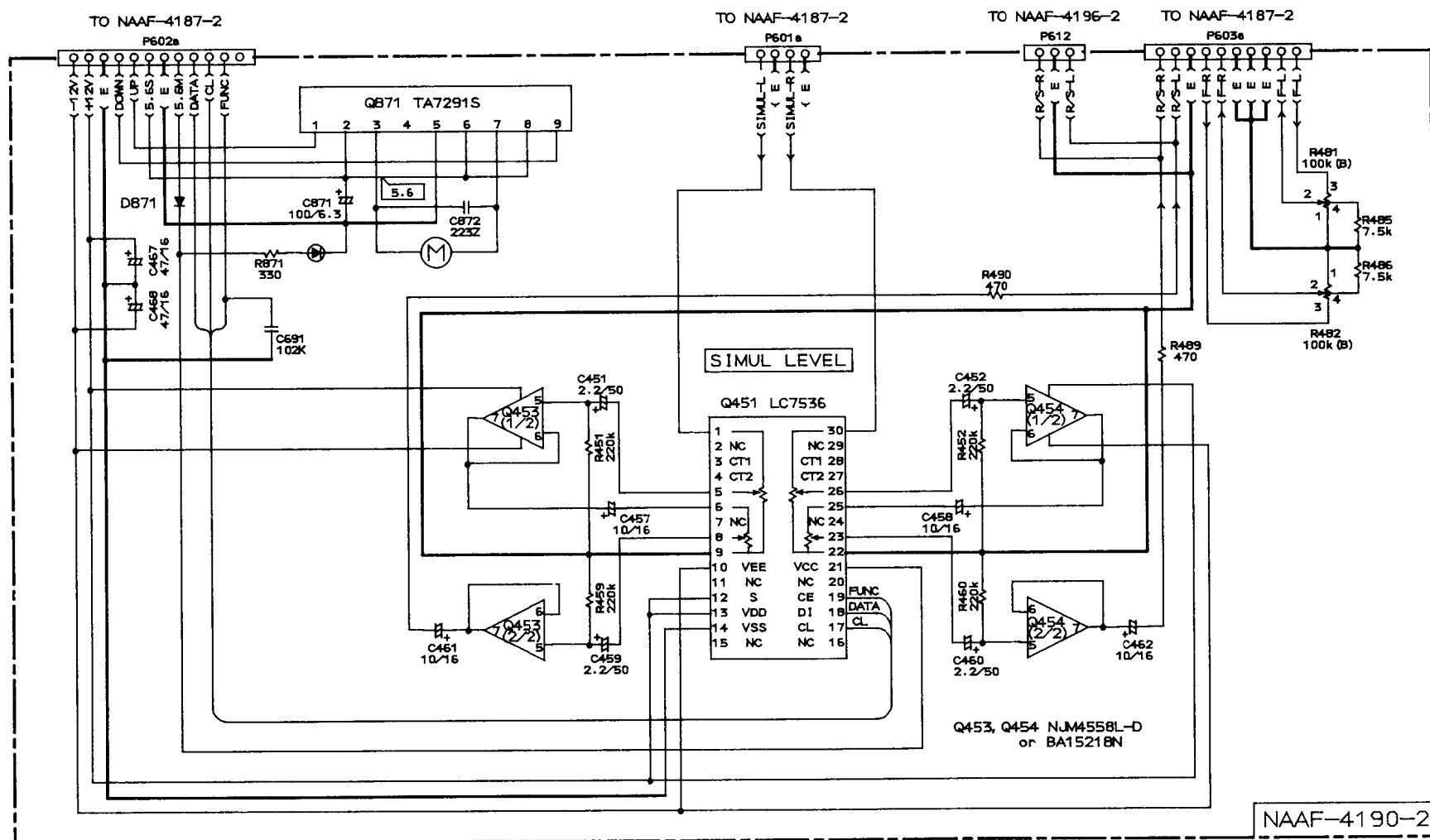
### VOLUME SECTION



# SCHEMATIC DIAGRAM

## MODEL TX-904 OTHER MODELS

### VOLUME SECTION



# PRINTED CIRCUIT BOARD PARTS LIST

CAUTION: Replacement for transistor of mark ☆, if necessary must be made from the same beta group (HFE) as the original type.

## MODEL TX-906

SELECTOR AND POWER AMPLIFIER PC BOARD  
(NAAF-4187-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs			Capacitors	
Q301	22240191	NJM4565D-D	C315,C316	354744709	47 $\mu$ F,16V,Elect.
Q302-Q306	22240247	BA15218N	C317,C318	373303314	330pF $\pm$ 5%,125V,Plastic <P/W>
Q307	22240270	LC7822N	C391,C392	373303314	330pF $\pm$ 5%,125V,Plastic
Q308	22240280	LC7821N	C401,C402	391941007	10 $\mu$ F,16V,Elect.
Q309	22240339	LC7823N	C403,C404	354744709	47 $\mu$ F,16V,Elect.
Q401,Q402	22240247 or	BA15218N or	C405,C406	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
	22240293	NJM4558L-D	C409,C410	374721534	0.015 $\mu$ F $\pm$ 5%,50V,Plastic
Q501,Q502	22240311	$\mu$ PC1298V	C413-C416	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
Q801	22240247	BA15218N	C417-C420	374721024	1000pF $\pm$ 5%,50V,Plastic
Q851	22240211	$\mu$ PD6345C	C441,C442	391941007	10 $\mu$ F,16V,Elect.
Q901	222780122NEC	78M12	C491-C493	391941007	10 $\mu$ F,16V,Elect.
Q902	222790125	79M12	C501,C502	391941007	10 $\mu$ F,16V,Elect.
Q903	222780565JRC	78M56	C507,C508	354742219	220 $\mu$ F,16V,Elect.
	Transistors		C513,C514	374726834	0.068 $\mu$ F $\pm$ 5%,50V,Plastic
Q403-Q406	2211945	2SK246-GR	C515,C516	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
Q491-Q495	2213631 or	RN1241-A or	C517-C520	354700109	1 $\mu$ F,160V,Elect.
	2213632	RN1241-B	C533	391921017	100 $\mu$ F,6.3V,Elect.
Q496-Q498	2213510	DTA114ES	C801,C802	391941007	10 $\mu$ F,16V,Elect.
Q503,Q504	2213284	2SC1740S-R	C851	391921017	100 $\mu$ F,6.3V,Elect.
Q505,Q506	2201653,	☆ 2SC3856-O,	C905,C906	3504244	10000 $\mu$ F,63V,Elect.
	2201654,	☆ 2SC3856-Y,	C909,C910	3504213	4700 $\mu$ F,35V,Elect.
	2201655,	☆ 2SC3856-P,	C913,C914	391941007	10 $\mu$ F,16V,Elect.
	2202272 or	☆ 2SC3907-R or	C915	354751029	1000 $\mu$ F,25V,Elect.
	2202273	☆ 2SC3907-O	C917	391941007	10 $\mu$ F,16V,Elect.
Q507,Q508	2201663,	☆ 2SA1492-O,	C918	354761019	100 $\mu$ F,35V,Elect.
	2201664,	☆ 2SA1492-Y,	C919	354781019	100 $\mu$ F,50V,Elect.
	2201665,	☆ 2SA1492-P,	C921	354754719	470 $\mu$ F,25V,Elect.
	2202262 or	☆ 2SA1516-R or		Resistors	
	2202263	☆ 2SA1516-O	R393	5104225	N11RGLC250KWT22Z, Balance,Variable
Q531-Q534	2211732 or	2SC1845-F or	R407,R408	5104230	N14RLC100KWT22Z, Bass,Variable
	2211733	2SC1845-E	R413,R414	5104230	N14RLC100KWT22Z, Treble,Variable
Q561	2211792 or	2SA992-F or	R509,R510	5210261	N06HR5KBC,Idling, Semi-fixed
	2211793	2SA992-E	R515,R516	442520824	8.2 $\Omega$ ,1/2W,Metal oxide film
Q861,Q905	221282	DTC144ES	R517,R518	441620824	8.2 $\Omega$ ,1W,Metal oxide film
Q862	2213510	DTA114ES	R519,R520	4500031	0.22 $\Omega$ ,5W,Metal plate
Q904	2213830	DTB113ZS	R521,R522	442520824	8.2 $\Omega$ ,1/2W,Metal oxide film
Q906	2213354	2SA933S-R	R523,R524	441620824	8.2 $\Omega$ ,1W,Metal oxide film
	Diodes		R525-R528	442524794	0.47 $\Omega$ ,1/2W,Metal oxide film
D401-D404	223163	1SS133	R529,R530	441623914	390 $\Omega$ ,1W,Metal oxide film
D491-D493	223163	1SS133	R531,R532	442522224	2.2k $\Omega$ ,1/2W,Metal oxide film
D501,D502	223163	1SS133	R903	442523304	33 $\Omega$ ,1/2W,Metal oxide film
D56i	224450512	MTZ5.1B,Zener	R906	441721804	18 $\Omega$ ,2W,Metal oxide film
D851,D905	223163	1SS133	R907	441721514	150 $\Omega$ ,2W,Metal oxide film
D901	22380038	RBV602	R908	442524704	47 $\Omega$ ,1/2W,Metal oxide film
D903	22380048	RBA402	R911	442523314	330 $\Omega$ ,1/2W,Metal oxide film
D904,D906	22380032	1SR139-100	R912	442522204	22 $\Omega$ ,1/2W,Metal oxide film
D907	224450913	MTZ9.1C,Zener		Relaies	
D908,D909	22380032	1SR139-100	RL501	25065396	NRL-2P1.25A-DC24-067
D910	224452704	MTZ27D,Zener	RL502	25065339	NRL-2P5A-DC24-046
D911,D912	223163	1SS133		Terminals	
D991-D994	223163	1SS133	P301-P303	25045300	NPJ-6PDBL159,Input/output
	Coils		P501	25060159	NTM-8PDMN085,Speaker
L501,L502	231176	S-1.3C		Plugs	
	Capacitors		P201	25055502	NPLG-16P477
C301,C302	373302214	220pF $\pm$ 5%,125V,Plastic <P/W>	P491	25055583	NPLG-7P554
C303,C304	391980227	2.2 $\mu$ F,50V,Elect.	P511,P512	25055493	NPLG-2P468
C305,C306	373301024	1000pF $\pm$ 5%,125V,Plastic <P/W>	P601	25055499	NPLG-10P474
C307,C308	391921017	100 $\mu$ F,6.3V,Elect.	P602	25055501	NPLG-14P476
C309,C310	374726224	6200pF $\pm$ 5%,50V,Plastic			
C311,C312	374721824	1800pF $\pm$ 5%,50V,Plastic			
C313,C314	391941007	10 $\mu$ F,16V,Elect.			

NOTE: <D>: Only 120V model  
 <P>: Only 230V/240V models  
 <W>: Only Worldwide model

CIRCUIT NO.	PART NO.	DESCRIPTION
	Plug	
P603	25055500	NPLG-12P475
	Clamp	
P991	260224	CP-1S
	Socket	
JL701a	25050610	NSCT-30P421
	Fuseholders	
F904a,F905a	250113	⚠ S-N5051 <D>
	25050065	⚠ YSH403T <P/W>
	Fuses	
F904,F905	252051	⚠ 6A(ST-6),Secondary <D>
	252078	⚠ 5A-SE-EAK,Secondary <P/W>
	Fuse Rating Labels	
F904b,F905b	29360419	T5A/250V <P/W>
	Radiator	
	27160262	Q501,Q502
	27160209	RAD-67

## HEADPHONE TERMINAL PC BOARD (NAETC-4188-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P504	25045255	YKB21-5009

## DISPLAY CIRCUIT PC BOARD (NADIS-4189-1/1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote Sensor	
U701	24130003	GP1U50XS
	FL Tube	
Q701	212099	11-BT-92GK
	ICs	
Q702	22240486	$\mu$ PD75212ACW-284
Q703	22240466	$\mu$ PD17103CX-531
Q705	22240211	$\mu$ PD6345C
Q706	22240341	BA6125
	Transistors	
Q707-Q709	2213284	2SC1740S-R
Q710-Q712	221282	DTC144ES
Q713	2213640	DTC123JS
Q714,Q716	2213830	DTB113ZS
Q715	2213510	DTA114ES
	Diodes	
D701,D702	224450623	MTZ6.2C,Zener
D713-D738	223163	1SS133
D740-D742	223163	1SS133
D743,D762	224450562	MTZ5.6B,Zener
D744-D748	223163	1SS133
D752-D754	223163	1SS133
D758	223163	1SS133
	L.E.Ds	
D703,D705	225137CG,	SEL2413ECG,
D707,D709	225137DG or	SEL2413EDG or
	225137DY	SEL2413EDY
D704,D706	225142	SEL2913K
D708	225142	SEL2913K
D710-D712	225142	SEL2913K
	Coil	
L701	233411K220	NCH-1387
	Ceramic Oscillators	
X701	3010163	CST4.19MGW
X702	3010154	CST8.00MT
	Capacitors	
C701,C705	353780109	1 $\mu$ F,50V,Elect.
C703,C704	353741009	10 $\mu$ F,16V,Elect.
C707	375524744	0.47 $\mu$ F $\pm$ 5%,50V,Plastic
C708	3000057	0.1F,5.5V,Super

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C710,C715	354780109	1 $\mu$ F,50V,Elect.
C711	353721019	100 $\mu$ F,6.3V,Elect.
	Resistor	
R742	49163104406	100k $\Omega$ $\times$ 6,1/10W,Network
	Switches	
S701-S703	25035548	NPS-111-S510
S705-S718	25035548	NPS-111-S510
S721-S742	25035548	NPS-111-S510
S746	25065286	NSS-22112,Band <W>
	Plug	
P702b	25055512	NPLG-5P487
	Socket	
JL701b	25050576	NSCT-30P387
	Holders	
Q702a	27190842	LED9
D711a	27190843	LED1

## VOLUME AND SURROUND CIRCUIT PC BOARD (NAAF-4190-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q451	22240468	LC7536
Q453,Q454	22240247 or	BA15218N or
Q601,Q605	22240293	NJM4558L-D
Q602	22240458	NJM2175L
Q661	22240370	M50198P
Q691	22240339	LC7823N
Q692	22240270	LC7822N
Q871	22240239	TA7291S
	Transistors	
Q455-Q457	2213631 or	RN1241-A or
Q603,Q604	2213632	RN1241-B
	Diodes	
D451	223163	1SS133
D661,D662	223163	1SS133
D871	223163	1SS133
	Coil	
L661	233411K220	NCH-1387
	Ceramic Oscillator	
X661	3010169	CST3.27MGW002
	Capacitors	
C451,C452	391980227	2.2 $\mu$ F,50V,Elect.
C455,C456	354744709	47 $\mu$ F,16V,Elect.
C457,C458	391941007	10 $\mu$ F,16V,Elect.
C459,C460	391980227	2.2 $\mu$ F,50V,Elect.
C461,C462	391941007	10 $\mu$ F,16V,Elect.
C463,C464	354781099	0.1 $\mu$ F,50V,Elect.
C465,C466	374721024	1000pF $\pm$ 5%,50V,Plastic
C467,C468	354744709	47 $\mu$ F,16V,Elect.
C603-C608	391941007	10 $\mu$ F,16V,Elect.
C609-C612	354781099	0.1 $\mu$ F,50V,Elect.
C615,C616	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C617,C618	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C619-C622	354781099	0.1 $\mu$ F,50V,Elect.
C623,C624	354780479	4.7 $\mu$ F,50V,Elect.
C625-C629	354782299	0.22 $\mu$ F,50V,Elect.
C630,C632	391941007	10 $\mu$ F,16V,Elect.
C631	354786899	0.68 $\mu$ F,50V,Elect.
C635	374722224	2200pF $\pm$ 5%,50V,Plastic
C636	354724719	470 $\mu$ F,6.3V,Elect.
C637	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C638	374725624	5600pF $\pm$ 5%,50V,Plastic
C639	354742219	220 $\mu$ F,16V,Elect.
C640	391941007	10 $\mu$ F,16V,Elect.

NOTE: <D>: Only 120V model  
 <P>: Only 230V/240V models  
 <W>: Only Worldwide model

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C641	374723324	3300pF±5%,50V,Plastic
C642-C646	391941007	10 $\mu$ F,16V,Elect.
C648	374722224	2200pF±5%,50V,Plastic
C649-C652	391941007	10 $\mu$ F,16V,Elect.
C661	354780109	1 $\mu$ F,50V,Elect.
C662	374725624	5600pF±5%,50V,Plastic
C664	374721044	0.01 $\mu$ F±5%,50V,Plastic
C665	354744709	47 $\mu$ F,16V,Elect.
C666,C667	354784799	0.47 $\mu$ F,50V,Elect.
C668,C672	374721044	0.1 $\mu$ F±5%,50V,Plastic
C669	374725624	5600pF±5%,50V,Plastic
C671,C673	391921017	100 $\mu$ F,6.3V,Elect.
C674	374721044	0.1 $\mu$ F±5%,50V,Plastic
C675	375524744	0.47 $\mu$ F±5%,50V,Plastic
C871	391921017	100 $\mu$ F,6.3V,Elect.
	Resistor	
R481-R484	5144014A	N16RQL100KBT25F, Variable, Volume
	Sockets	
P601a	25050446	NSCT-10P270
P602a	25050448	NSCT-14P272
P603a	25050447	NSCT-12P271
P611	2000556	NSAS-6P512
P612	2009990024	NSAS-10P0048

#### RI/mR TERMINAL PC BOARD (NADG-4191-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q762	222780053	78L05,IC
Q764	221282	DTC144ES,Transistor <D>
Q765,Q766	221282	DTC144ES,Transistors
D761,D762	223163	1SS133,Diodes
D764,D765	223163	1SS133,Diodes
C767	354741009	10 $\mu$ F,16V,Elect. capacitor
C770	374724724	4700pF±5%,50V, Plastic capacitor
P761	25045172	HSJ-1003-01-020,Terminal RI
P762	25045293	HSJ-1003-01-012,Terminal mR
P951a	25050444	NSCT-6P268,Socket

#### OPERATION SWITCH PC BOARD (NASW-4192-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
S719	25035548	NPS-111-S510,Switch
S743,S744	25035548	NPS-111-S510,Switches
P702	25050456	NSCT-5P280,Socket

#### INPUT BALANCE VOLUME PC BOARD (NAETC-4193-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
R600	5104258	N11RGLC250KWT15Z, Variable resistor

#### TUNER CIRCUIT PC BOARD(NARF-4194-1/1A/1B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front End	
TU001	240088	FE337-A07 <D>
	240089	FE415-G11 <P/W>
	ICs	
Q104	22240039	LA1266
Q107	22240090	LM7001
Q201	22240242	AN7470
Q208	22240247 or 22240293	BA15218N or NJM4558L-D

NOTE: THE COMPONENTS IDENTIFIED BY MARK  $\Delta$   
 ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC  
 SHOCK. REPLACE ONLY WITH PART NUMBER  
 SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q101	2210746	2SC945A-P <P/W>
Q102	2211723	2SC1923-O
Q103	2213284	2SC1740S-R
Q105	2212445	2SK365-GR
Q106	2213284	2SC1740S-R
Q108,Q109	2213510	DTA114ES
Q202-Q204	2211945	2SK246-GR
Q205,Q206	2212794	2SD1468-R
Q207	2213510	DTA114ES
	Diodes	
D101,D102	223132	1K60
D103	224450512	MTZ5.1B,Zener
D201-D207	223163	1SS133
	Coils and Transformers	
L101	233401	NFIF-4072,IFT
L102	233402	NFIF-4073,IFT
L103	233411M022	NCH-1375
L104	233383	NMC-6070 <P/W>
L151	232148	NMRF-7050,AM RF block
L152	232139	NMIF-4062,IFT
L201,L202	233355A	NMC-4059,LPF
	Ceramic Filters	
X101	3010071	SFE10.7MA5
X102	3010071	SFE10.7MA5 <P/W>
X103	3010071	SFE10.7MA5 <D>
	3010130	SFE10.7MZZ <P/W>
X151	3010123	SFZ-450JL
X152	3010076	BFU-450C
	X'tal	
X104	3010141	XTL-7.2M
	Capacitors	
C001	354741019	100 $\mu$ F,16V,Elect.
C106	354784799	0.47 $\mu$ F,50V,Elect.
C107	354742209	22 $\mu$ F,16V,Elect.
C108	354741019	100 $\mu$ F,16V,Elect.
C112	354780229	2.2 $\mu$ F,50V,Elect.
C113	354784799	0.47 $\mu$ F,50V,Elect.
C116	374722234	0.022 $\mu$ F±5%,50V,Plastic
C117	374723334	0.033 $\mu$ F±5%,50V,Plastic
C118	354780229	2.2 $\mu$ F,50V,Elect.
C119	354782299	0.22 $\mu$ F,50V,Elect.
C123	354721019	100 $\mu$ F,6.3V,Elect.
C124	354741019	100 $\mu$ F,16V,Elect.
C154	354780479	4.7 $\mu$ F,50V,Elect.
C155-C157	354741009	10 $\mu$ F,16V,Elect.
C159	374724734	0.047 $\mu$ F±5%,50V,Plastic
C160	374721034	0.01 $\mu$ F±5%,50V,Plastic
C161	354782299	0.22 $\mu$ F,50V,Elect.
C201	354744719	470 $\mu$ F,16V,Elect.
C202	354742209	22 $\mu$ F,16V,Elect.
C205	354782299	0.22 $\mu$ F,50V,Elect.
C206	354780109	1 $\mu$ F,50V,Elect.
C207	354780339	3.3 $\mu$ F,50V,Elect.
C208	370134714	470pF±5%,100V,Plastic
C209	374724734	0.047 $\mu$ F±5%,50V,Plastic
C211,C212	374721824	1800pF±5%,50V,Plastic <D>
	374721224	1200pF±5%,50V,Plastic <P>
	374721524	1500pF±5%,50V,Plastic <W>
C213,C214	354742209	22 $\mu$ F,16V,Elect.
C215,C216	354741009	10 $\mu$ F,16V,Elect.
C217,C218	374728224	8200pF±5%,50V,Plastic
C219,C220	374726224	6200pF±5%,50V,Plastic <D>
	374721824	1800pF±5%,50V,Plastic <P/W>

NOTE: <D>: Only 120V model  
<P>: Only 230V/240V models  
<W>: Only Worldwide model

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C221	374721034	0.01 $\mu$ F $\pm$ 5%, 50V, Plastic
C222	354780229	2.2 $\mu$ F, 50V, Elect.
C223	374721024	1000pF $\pm$ 5%, 50V, Plastic <D>
C224	374724734	0.047 $\mu$ F $\pm$ 5%, 50V, Plastic
C225, C226	354741009	10 $\mu$ F, 16V, Elect.
	Resistors	
R101	5210266	N06HR100KBC, Semi-fixed
R102, R202	5210267	N06HR200KBC, Semi-fixed
R201	5210261	N06HR5KBC, Semi-fixed
	Terminal	
P101	25060160	NTM-4PDMN086 <D>
	25060087	NTM-2PDMN31 <P/W>
	Socket	
P201	25050449	NSCT-16P273
POWER SUPPLY CIRCUIT PC BOARD (NAPS-4195-1/1A/1B/1C)		
CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q951	221282	DTC144ES
Q952	2213650	DTD113ZS
	Diodes	
D951-D954	22380032	1SR139-100
D955	223163	1SS133
D995, D996	223163	1SS133
	Power transformer	
T902	2300670	$\Delta$ NPT-1111D <D>
	2300671	$\Delta$ NPT-1111P <P>
	2300672	$\Delta$ NPT-1111DG <W>
	2300673	$\Delta$ NPT-1111Q <Q>
	Capacitors	
C901	3500065A	$\Delta$ DE7150FZ103PAC400V/125V, IS
C952	354761019	100 $\mu$ F, 35V, Elect.
	Resistors	
R901	431523355	$\Delta$ 3.3M $\Omega$ , 1/2W, Solid <D>
R951	442520824	8.2 $\Omega$ , 1/2W, Metal oxide film
	AC outlet	
P902	25050409	$\Delta$ NSCT-4P234 <D>
	25050640	$\Delta$ NSCT-4P451 <P/W>
	Switch	
S901	25065437	NSS-22157P, Voltage selector <W>
	Relay	
RL901	25065248	$\Delta$ NRL-1P15A-DC12-29
	Fuses	
F901	252051	$\Delta$ 6A ST-6, Primary <D/W>
F902	252076	$\Delta$ 3.15A-SE-EAK, Primary <P/W/Q>
F903	252075	$\Delta$ 2.5A-SE-EAK, AC outlet <P>
	Fuseholders	
F901a	250113	$\Delta$ SN5051 <D/W>
F902a	25050065	$\Delta$ YSH403T <P/W/Q>
F903a	25050065	$\Delta$ YSH403T <P>
	Plug	
P951	25055497	NPLG-6P472

NOTE: THE COMPONENTS IDENTIFIED BY MARK  $\Delta$   
ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC  
SHOCK. REPLACE ONLY WITH PART NUMBER  
SPECIFIED.

## VIDEO AND REAR AMPLIFIER PC BOARD (NAAF-4196-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q251	22240373	BA7625
Q571, Q572	22240467	SI-18751
Q881	22240247	BA15218N
	Transistors	
Q252, Q253	2213354	2SA933S-R
Q573, Q574	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q882	2213631 or 2213632	RN1241-A or RN1241-B
Q883	2213510	DTA114ES
	Diodes	
D251	223163	1SS133
D253, D254	223163	1SS133
D505, D506	223163	1SS133
D571-D574	223163	1SS133
	Coils	
L571, L572	231176	S-1.3C
	Capacitors	
C251, C252	391980227	2.2 $\mu$ F, 50V, Elect.
C253, C254	354724719	470 $\mu$ F, 6.3V, Elect.
C255	391921017	100 $\mu$ F, 6.3V, Elect.
C571, C572	391941007	10 $\mu$ F, 16V, Elect.
C577, C578	354741019	100 $\mu$ F, 16V, Elect.
C581, C582	374724734	0.047 $\mu$ F $\pm$ 5%, 50V, Plastic
C591, C592	391980227	2.2 $\mu$ F, 50V, Elect.
C593	354781099	0.1 $\mu$ F, 50V, Elect.
C881, C886	391941007	10 $\mu$ F, 16V, Elect.
	Resistors	
R581, R582	442520824	8.2 $\Omega$ , 1/2W, Metal oxide film
R583, R584	4000059	0.22 $\Omega$ , 2W, Metal plate
	Relaies	
RL505, RL506	25065339	NRL-2P5A-DC24-046
	Terminals	
P251	25045339	NPJ-4PDYE190, Video out.
P502	25060161	NTM-4PDMN087, Rear speaker
P506	25045302	NPJ-1PDBL161, Center preout.
	Plug	
P612a	25055135	NPLG-5P119
	Sockets	
JL251	25050273	NSCT-9P101
JL571	25050272	NSCT-8P100
JL572	25050267	NSCT-3P95

## REAR PREOUT. PC BOARD (NAETC-4199-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P505	25045307	NPJ-2PDBL166, Rear preout. terminal



# PRINTED CIRCUIT BOARD PARTS LIST

CAUTION: Replacement for transistor of mark ☆, if necessary must be made from the same beta group (HFE) as the original type.

## MODEL TX-904

SELECTOR AND POWER AMPLIFIER PC BOARD  
(NAAF-4187-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q301	22240191	NJM4565D-D
Q302-Q306	22240247	BA15218N
Q307	22240270	LC7822N
Q308	22240280	LC7821N
Q309	22240339	LC7823N
Q401,Q402	22240247 or 22240293	BA15218N or NJM4558L-D
Q501,Q502	22240311	μ PC1298V
Q801	22240247	BA15218N
Q851	22240211	μ PD6345C
Q901	222780122NEC	78M12
Q902	222790125	79M12
Q903	222780565JRC	78M56
	Transistors	
Q403-Q406	2211945	2SK246-GR
Q491-Q494	2213631 or 2213632	RN1241-A or RN1241-B
Q496,Q497	2213510	DTA114ES
Q503,Q504	2213284	2SC1740S-R
Q505,Q506	2202523, 2202524, 2202526, 2202292 or 2202293	☆ 2SC4468-O, ☆ 2SC4468-Y, ☆ 2SC4468-P, ☆ 2SC3182N-R or ☆ 2SC3182N-O
Q507,Q508	2202513, 2202514, 2202516, 2202282 or 2202283	☆ 2SA1695-O, ☆ 2SA1695-Y, ☆ 2SA1695-P, ☆ 2SA1265N-R or ☆ 2SA1265N-O
Q531-Q534	2211732 or 2211733	2SC1845-F or 2SC1845-E
Q561	2211792 or 2211793	2SA992-F or 2SA992-E
Q861,Q905	221282	DTC144ES
Q862	2213510	DTA114ES
Q904	2213830	DTB113ZS
Q906	2213354	2SA933S-R
	Diodes	
D401-D404	223163	1SS133
D501,D502	223163	1SS133
D561	224450512	MTZ5.1B,Zener
D851,D905	223163	1SS133
D901	22380038	RBV602
D903	22380048	RBA402
D904,D906	22380032	1SR139-100
D907	224450913	MTZ9.1C,Zener
D908,D909	22380032	1SR139-100
D910	224452704	MTZ27D,Zener
D911,D912	223163	1SS133
D991-D994	223163	1SS133
	Coils	
L501,L502	231176	S-1.3C
	Capacitors	
C301,C302	373302214	220pF±5%,125V,Plastic <P/W>
C303,C304	391980227	2.2 μ F,50V,Elect.
C305,C306	373301024	1000pF±5%,125V,Plastic <P/W>
C307,C308	391921017	100 μ F,6.3V,Elect.
C309,C310	374726224	6200pF±5%,50V,Plastic
C311,C312	374721824	1800pF±5%,50V,Plastic
C313,C314	391941007	10 μ F,16V,Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C315,C316	354744709	47 μ F,16V,Elect.
C317,C318	373303314	330pF±5%,125V,Plastic <P/W>
C391,C392	373303314	330pF±5%,125V,Plastic
C401,C402	391941007	10 μ F,16V,Elect.
C403,C404	354744709	47 μ F,16V,Elect.
C405,C406	374721534	0.015 μ F±5%,50V,Plastic
C409,C410	374721534	0.015 μ F±5%,50V,Plastic
C413-C416	374721044	0.1 μ F±5%,50V,Plastic
C417-C420	374721024	1000pF±5%,50V,Plastic
C441,C442	391941007	10 μ F,16V,Elect.
C491,C492	391941007	10 μ F,16V,Elect.
C501,C502	391941007	10 μ F,16V,Elect.
C507,C508	354742219	220 μ F,16V,Elect.
C513,C514	374726834	0.068 μ F±5%,50V,Plastic
C515,C516	374724734	0.047 μ F±5%,50V,Plastic
C517-C520	354700109	1 μ F,160V,Elect.
C533	391921017	100 μ F,6.3V,Elect.
C801,C802	391941007	10 μ F,16V,Elect.
C851	391921017	100 μ F,6.3V,Elect.
C905,C906	3504245	8200 μ F,50V,Elect.
C909,C910	3504213	4700 μ F,35V,Elect.
C913,C914	391941007	10 μ F,16V,Elect.
C915	354751029	1000 μ F,25V,Elect.
C917	391941007	10 μ F,16V,Elect.
C918	354761019	100 μ F,35V,Elect.
C919	354781019	100 μ F,50V,Elect.
C921	354754719	470 μ F,25V,Elect.
	Resistors	
R393	5104225	N11RGLC250KWT22Z, Balance,Variable
R407,R408	5104230	N14RLC100KWT22Z, Bass,Variable
R413,R414	5104230	N14RLC100KWT22Z, Treble,Variable
R509,R510	5210261	N06HR5KBC,Idling, Semi-fixed
R515,R516	442520824	8.2 Ω ,1/2W,Metal oxide film
R517,R518	441620824	8.2 Ω ,1W,Metal oxide film
R519,R520	4500031	0.22 Ω ,5W,Metal plate
R521,R522	442520824	8.2 Ω ,1/2W,Metal oxide film
R523,R524	441620824	8.2 Ω ,1W,Metal oxide film
R525-R528	442524794	0.47 Ω ,1/2W,Metal oxide film
R529,R530	441623914	390 Ω ,1W,Metal oxide film
R531,R532	442522224	2.2k Ω ,1/2W,Metal oxide film
R903	442523304	33 Ω ,1/2W,Metal oxide film
R906	441721804	18 Ω ,2W,Metal oxide film
R907	441721514	150 Ω ,2W,Metal oxide film
R908	442524704	47 Ω ,1/2W,Metal oxide film
R911	442523314	330 Ω ,1/2W,Metal oxide film
R912	442522204	22 Ω ,1/2W,Metal oxide film
	Relaies	
RL501	25065396	NRL-2P1.25A-DC24-067
RL502	25065339	NRL-2P5A-DC24-046
	Terminals	
P301-P303	25045300	NPJ-6PDBL159,Input/output
P501	25060159	NTM-8PDMN085,Speaker
	Plugs	
P201	25055502	NPLG-16P477
P491	25055583	NPLG-7P554
P511,P512	25055493	NPLG-2P468
P601	25055496	NPLG-4P471
P602	25055500	NPLG-12P475

NOTE: <D>: Only 120V model  
<P>: Only 230V/240V models  
<W>: Only Worldwide model

CIRCUIT NO.	PART NO.	DESCRIPTION
	Plug	
P603	25055499	NPLG-10P474
	Clamp	
P991	260224	CP-1S
	Socket	
JL701a	25050610	NSCT-30P421
	Fuseholders	
F904a,F905a	250113	△ S-N5051 <D>
	25050065	△ YSH403T <P/W>
	Fuses	
F904,F905	252051	△ 6A(ST-6),Secondary <D>
	252078	△ 5A-SE-EAK,Secondary <P/W>
	Fuse Rating Labels	
F904b,F905b	29360419	T5A/250V <P/W>
	Radiator	
	27160262	Q501,Q502
	27160209	RAD-67

#### HEADPHONE TERMINAL PC BOARD (NAETC-4188-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
P504	25045255	YKB21-5009

#### DISPLAY CIRCUIT PC BOARD (NADIS-4189-2/2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Remote Sensor	
U701	24130003	GP1U50XS
	FL Tube	
Q701	212099	11-BT-92GK
	ICs	
Q702	22240486	μ PD75212ACW-284
Q703	22240466	μ PD17103CX-531
Q705	22240211	μ PD6345C
Q706	22240341	BA6125
	Transistors	
Q707-Q709	2213284	2SC1740S-R
Q710-Q712	221282	DTC144ES
Q713	2213640	DTC123JS
Q714,Q716	2213830	DTB113ZS
Q715	2213510	DTA114ES
	Diodes	
D701,D702	224450623	MTZ6.2C,Zener
D713	223163	1SS133
D715-D738	223163	1SS133
D740-D742	223163	1SS133
D743,D762	224450562	MTZ5.6B,Zener
D744-D748	223163	1SS133
D752-D754	223163	1SS133
D758	223163	1SS133
	L.E.Ds	
D705,D707	225137CG,	SEL2413ECG,
D709	225137DG or	SEL2413EDG or
	225137DY	SEL2413EDY
D706,D708	225142	SEL2913K
D710-D712	225142	SEL2913K
	Coil	
L701	233411K220	NCH-1387
	Ceramic Oscillators	
X701	3010163	CST4.19MGW
X702	3010154	CST8.00MT
	Capacitors	
C701,C705	353780109	1 μ F,50V,Elect.
C703,C704	353741009	10 μ F,16V,Elect.
C707	375524744	0.47 μ F±5%,50V,Plastic
C708	3000057	0.1F,5.5V,Super

NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C710,C715	353780109	1 μ F,50V,Elect.
C711	353721019	100 μ F,6.3V,Elect.
	Resistor	
R742	49163104406	100k Ω × 6,1/10W,Network
	Switches	
S701-S703	25035548	NPS-111-S510
S705	25035548	NPS-111-S510
S709-S718	25035548	NPS-111-S510
S721-S742	25035548	NPS-111-S510
S746	25065286	NSS-22112,Band <W>
	Plug	
P702b	25055512	NPLG-5P487
	Socket	
JL701b	25050576	NSCT-30P387
	Holders	
Q702a	27190842	LED9
D711a	27190843	LED1

#### VOLUME CIRCUIT PC BOARD (NAAF-4190-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q451	22240468	LC7536
Q453,Q454	22240247 or	BA15218N or
	22240293	NJM4558L-D
Q871	22240239	TA7291S
	Diode	
D871	223163	1SS133
	Capacitors	
C451,C452	391980227	2.2 μ F,50V,Elect.
C457,C458	391941007	10 μ F,16V,Elect.
C459,C460	391980227	2.2 μ F,50V,Elect.
C461,C462	391941007	10 μ F,16V,Elect.
C467,C468	354744709	47 μ F,16V,Elect.
C871	391921017	100 μ F,6.3V,Elect.
	Resistor	
R481,R482	5142006A	N16RGL100KBT25F, Variable,Volume
	Sockets	
P601a	25050443	NSCT-4P267
P602a	25050447	NSCT-12P271
P603a	25050446	NSCT-10P270
P612	2000589A	NSAS-6P545

#### RI/mR TERMINAL PC BOARD (NADG-4191-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q762	222780053	78L05.IC
Q764	221282	DTC144ES,Transistor <D>
Q765,Q766	221282	DTC144ES,Transistors
D761,D762	223163	1SS133,Diodes
D764,D765	223163	1SS133,Diodes
C767	354741009	10 μ F,16V,Elect. capacitor
C770	374724724	4700pF±5%,50V, Plastic capacitor
P761	25045172	HSJ-1003-01-020,Terminal RI
P762	25045293	HSJ-1003-01-012,Terminal mR
P951a	25050444	NSCT-6P268,Socket

#### OPERATION SWITCH PC BOARD (NASW-4192-2)

CIRCUIT NO.	PART NO.	DESCRIPTION
S719,S745	25035548	NPS-111-S510,Switches
P702	25050456	NSCT-5P280,Socket

NOTE: <D>: Only 120V model  
<P>: Only 230V/240V models  
<W>: Only Worldwide model

## TUNER CIRCUIT PC BOARD (NARF-4194-2/2A/2B)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Front end	
TU001	240088	FE337-A07 <D>
	240089	FE415-G11 <P/W>
	ICs	
Q104	22240039	LA1266
Q107	22240090	LM7001
Q201	22240242	AN7470
Q208	22240247 or	BA15218N or
	22240293	NJM4558L-D
	Transistors	
Q101	2210746	2SC945A-P <P/W>
Q102	2211723	2SC1923-O
Q103	2213284	2SC1740S-R
Q105	2212445	2SK365-GR
Q106	2213284	2SC1740S-R
Q108,Q109	2213510	DTA114ES
Q202	2211945	2SK246-GR
Q205,Q206	2212794	2SD1468-R
Q207	2213510	DTA114ES
	Diodes	
D101,D102	223132	1K60
D103	224450512	MTZ5.1B,Zener
D201,D202	223163	1SS133
D205-D207	223163	1SS133
	Coils and Transformers	
L101	233401	NFIF-4072,IFT
L102	233402	NFIF-4073,IFT
L103	233411M022	NCH-1375
L104	233383	NMC-6070 <P/W>
L151	232148	NMRF-7050,AM RF block
L152	232139	NMIF-4062,IFT
L201,L202	233355A	NMC-4059,LPF
	Ceramic Filters	
X101	3010071	SFE10.7MA5
X102	3010071	SFE10.7MA5 <P/W>
X103	3010071	SFE10.7MA5 <D>
	3010130	SFE10.7MZ2 <P/W>
X151	3010123	SFZ-450JL
X152	3010076	BFU-450C
	X'tal	
X104	3010141	XTL-7.2M
	Capacitors	
C001	354741019	100 $\mu$ F,16V,Elect.
C106	354784799	0.47 $\mu$ F,50V,Elect.
C107	354742209	22 $\mu$ F,16V,Elect.
C108	354741019	100 $\mu$ F,16V,Elect.
C112	354780229	2.2 $\mu$ F,50V,Elect.
C113	354784799	0.47 $\mu$ F,50V,Elect.
C116	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C117	374723334	0.033 $\mu$ F $\pm$ 5%,50V,Plastic
C118	354780229	2.2 $\mu$ F,50V,Elect.
C119	354782299	0.22 $\mu$ F,50V,Elect.
C123	354721019	100 $\mu$ F,6.3V,Elect.
C124	354741019	100 $\mu$ F,16V,Elect.
C154	354780479	4.7 $\mu$ F,50V,Elect.
C155-C157	354741009	10 $\mu$ F,16V,Elect.
C159	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C160	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic
C161	354782299	0.22 $\mu$ F,50V,Elect.
C201	354744719	470 $\mu$ F,16V,Elect.
C202	354742209	22 $\mu$ F,16V,Elect.
C205	354782299	0.22 $\mu$ F,50V,Elect.
C206	354780109	1 $\mu$ F,50V,Elect.


NOTE: THE COMPONENTS IDENTIFIED BY MARK  $\Delta$  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Capacitors	
C207	354780339	3.3 $\mu$ F,50V,Elect.
C208	370134714	470pF $\pm$ 5%,100V,Plastic
C209	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C211,C212	374721824	1800pF $\pm$ 5%,50V,Plastic <D>
	374721224	1200pF $\pm$ 5%,50V,Plastic <P>
	374721524	1500pF $\pm$ 5%,50V,Plastic <W>
C213,C214	354742209	22 $\mu$ F,16V,Elect.
C215,C216	354741009	10 $\mu$ F,16V,Elect.
C219,C220	374726224	6200pF $\pm$ 5%,50V,Plastic <D>
	374721824	1800pF $\pm$ 5%,50V,Plastic <P/W>
C221	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic
C222	354780229	2.2 $\mu$ F,50V,Elect.
C223	374721024	1000pF $\pm$ 5%,50V,Plastic <D>
C224	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C225,C226	354741009	10 $\mu$ F,16V,Elect.
	Resistors	
R101	5210266	N06HR100KBC,Semi-fixed
R102,R202	5210267	N06HR200KBC,Semi-fixed
R201	5210261	N06HR5KBC,Semi-fixed
	Terminal	
P101	25060160	NTM-4PDMN086 <D>
	25060087	NTM-2PDMN31 <P/W>
	Socket	
P201	25050449	NSCT-16P273

## POWER SUPPLY CIRCUIT PC BOARD (NAPS-4195-2/2A/2B/2C)

CIRCUIT NO.	PART NO.	DESCRIPTION
	Transistors	
Q951	221282	DTC144ES
Q952	2213650	DTD113ZS
	Diodes	
D951-D954	22380032	1SR139-100
D955	223163	1SS133
D995,D996	223163	1SS133
	Power transformer	
T902	2300670	$\Delta$ NPT-1111D <D>
	2300671	$\Delta$ NPT-1111P <P>
	2300672	$\Delta$ NPT-1111DG <W>
	2300673	$\Delta$ NPT-1111Q <Q>
	Capacitors	
C901	3500065A	$\Delta$ DE7150FZ103PAC400V/125V,IS
C952	354761019	100 $\mu$ F,35V,Elect.
	Resistors	
R901	431523355	$\Delta$ 3.3M $\Omega$ ,1/2W,Solid <D>
R951	442520824	8.2 $\Omega$ ,1/2W,Metal oxide film
	AC outlet	
P902	25050409	$\Delta$ NSCT-4P234 <D>
	25050640	$\Delta$ NSCT-4P451 <P/W>
	Switch	
S901	25065437	NSS-22157P, Voltage selector <W>
	Relay	
RL901	25065248	$\Delta$ NRL-1P15A-DC12-29
	Fuses	
F901	252051	$\Delta$ 6A ST-6,Primary <D/W>
F902	252076	$\Delta$ 3.15A-SE-EAK,Primary <P/W/Q>
F903	252075	$\Delta$ 2.5A-SE-EAK,AC outlet <P>
	Fuseholders	
F901a	250113	$\Delta$ SN5051 <D/W>
F902a	25050065	$\Delta$ YSH403T <P/W/Q>
F903a	25050065	$\Delta$ YSH403T <P>

NOTE: <D>: Only 120V model  
 <P>: Only 230V/240V models  
 <W>: Only Worldwide model

NOTE: THE COMPONENTS IDENTIFIED BY MARK  ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

CIRCUIT NO.	PART NO.	DESCRIPTION
	Plug	
P951	25055497	NPLG-6P472

## VIDEO AND SUB AMPLIFIER PC BOARD (NAAF-4196-2/2A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q251	22240373	BA7625
Q571,Q572	22240467	SI-18751
	Transistors	
Q252,Q253	2213354	2SA933S-R
Q573,Q574	2211732 or	2SC1845-F or
	2211733	2SC1845-E
	Diodes	
D251	223163	1SS133
D253,D254	223163	1SS133
D506	223163	1SS133
D571,D572	223163	1SS133
	Coils	
L571,L572	231176	S-1.3C
	Capacitors	
C251,C252	391980227	2.2 $\mu$ F,50V,Elect.
C253,C254	354724719	470 $\mu$ F,6.3V,Elect.
C255	391921017	100 $\mu$ F,6.3V,Elect.
C571,C572	391941007	10 $\mu$ F,16V,Elect.
C577,C578	354741019	100 $\mu$ F,16V,Elect.
C581,C582	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
C583,C584	374721044	0.1 $\mu$ F $\pm$ 5%,50V,Plastic
C591,C592	391980227	2.2 $\mu$ F,50V,Elect.
C593	354781099	0.1 $\mu$ F,50V,Elect.
	Resistors	
R581,R582	442520824	8.2 $\Omega$ ,1/2W,Metal oxide film
R583,R584	4000059	0.22 $\Omega$ ,2W,Metal plate
	Relay	
RL506	25065339	NRL-2P5A-DC24-046
	Terminal	
P251	25045339	NPJ-4PDYE190, Video out.
	Plug	
P612a	25055133	NPLG-3P117
	Sockets	
JL251	25050270	NSCT-6P98
JL571	25050272	NSCT-8P100
JL572	25050267	NSCT-3P95

# SERVICE PROCEDURES

## 1. Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

Circuit no.	Part no.	Description
F901	252051	△ 6A ST-6, Primary fuse<D/W>
F902	252076	△ 3.15A-SE-EAK, Primary fuse<P/W/Q>
F903	252075	△ 2.5A-SE-EAK, AC outlet fuse<P>
F904, F905	252051	△ 6A ST-6, Secondary fuse<D>
	252078	△ 5A-SE-EAK, Secondary fuse<P/W/Q>

NOTE:<D>:Only 120V model

<P>:Only 230V model

<W>:Only Worldwide model

<Q>:Only 240V model

## 2. Change of FM/AM band step.

With the exception of the Worldwide model, a BAND STEP selector switch is not provided.

(FM)

BAND STEP	R723	J751
100kHz→50kHz	Addition	Open
50kHz→100kHz	Eliminated	Short

(AM)

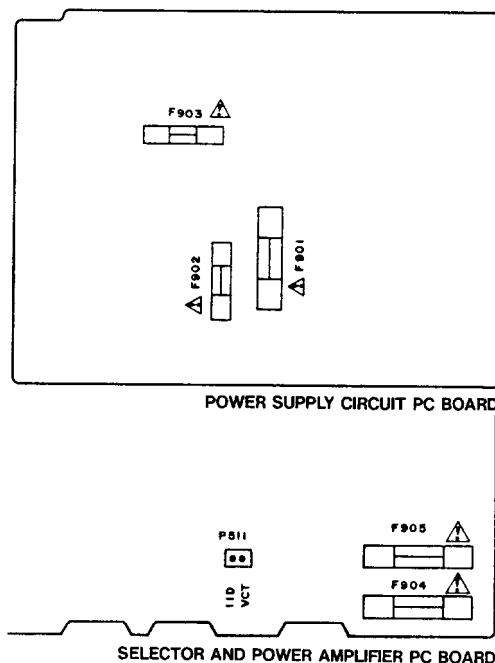
BAND STEP	R721	J749
10kHz→9kHz	Eliminated	Short
9kHz→10kHz	Addition	Open

In R721 and R722 Carbon resistor 100kΩ (Part No.417341044) are used.

— Worldwide model —

Worldwide models are equipped with a step band selector switch. This switch is located on the back panel. This switch is set to 50kHz(FM) and 9kHz(AM) at the factory, but may have to be reset to 100kHz and 10kHz depending on the area where the unit is used.

	De-emphasis	FM step	AM step
Europe:	50 μsec	50kHz	9kHz
U.S.A.:	75 μsec	200kHz	10kHz



## 3. Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

## 4. Safety-check out

(Only U.S.A. model)

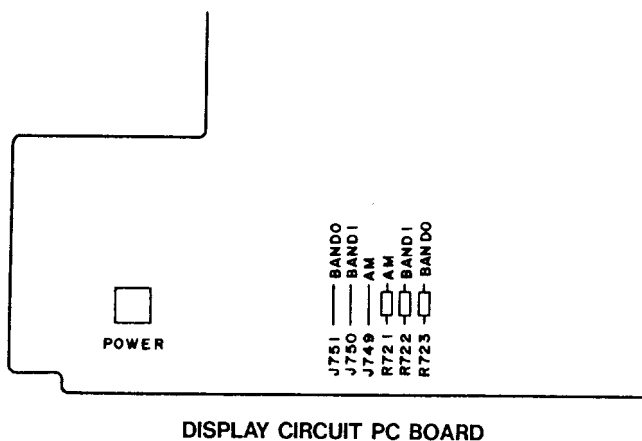
After correcting the original service problem perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and terminal GND on the back panel. Specifications: 3.3 Mohm ±10% at 500V.

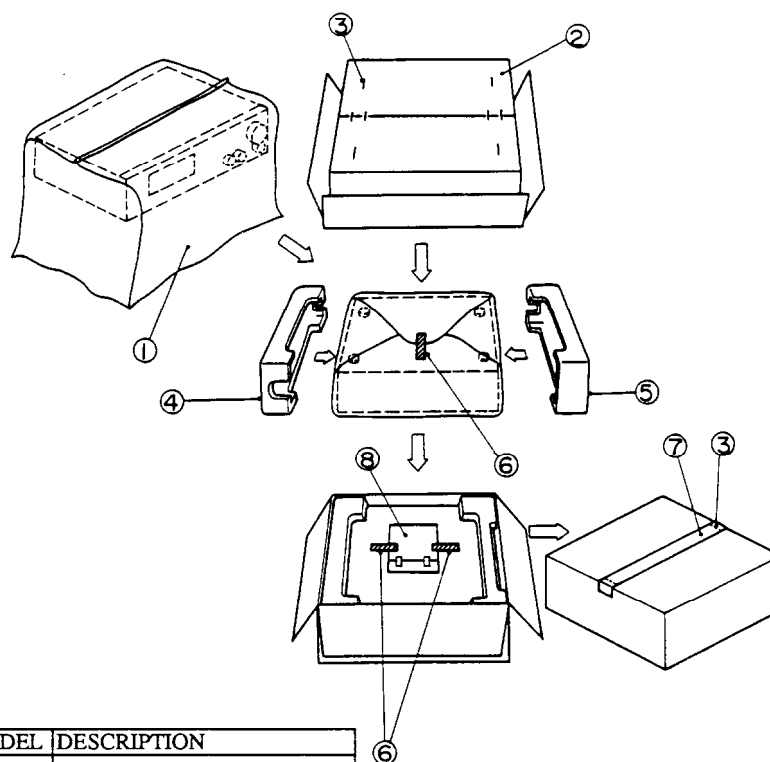
## 5. Change of voltage

Worldwide models are equipped with a voltage selector to conform with local power supplies. This switch is located on the back panel. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on.

This switch is set to 220V at the factory. Voltage is changed by sliding the groove in the switch with the screwdriver to the right or left. Confirm that the switch has been moved all the way to the right or left before turning the power switch on.



## PACKING VIEW



REF.NO.	PART NO.	PART NO.	MODEL	DESCRIPTION
	Model TX-906	Model TX-904		
1	29100034	29100034		850×650,Styrene bag
2	29052195	29052197		Master carton box
3	282320	282320		Sealing hook
4	29091449B	29091449B		Pad R
5	29091448B	29091448B		Pad L
6	261504	261504		Adhesive tape
7	29110071	29110071		Damplon tape
8	Accessory bag ass'y			
	29341628	29341628	D	Instruction manual
	29341629	29341629	P/W/Q	Instruction manual
	292064B	292064B	D	FM antenna
	292092	292092	P/W/Q	FM antenna
	232140	232140		NMA-3057,AM loop antenna
	2010200	2010200		Connection cord RI
	3010054	3010054		UM-3,Two batteries
	24140208		D	RC-208S,Remote control unit
		24140210	D	RC-210S,Remote control unit
	24140209		P/W/Q	RC-209S,Remote control unit
		24140211	P/W/Q	RC-211S,Remote control unit
	29365019A	29365019A	DN	Warranty card
	29365024	29365024	PF	Warranty card
	29358002J	29358002J	DN	Service station list
	25055018	25055018	W	CK-K-1,Conversion plug
	25060123	25060123	W/Q	FM antenna adaptor
	29100097	29100097		850×650,Styrene bag

NOTE: <D>:120V model  
 <P>:230V model  
 <W>:Only Worldwide model  
 <Q>:240V model  
 <DN>Only U.S.A. model  
 <PF>:Only French model

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